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U.S. Department of Transportation

San Antonio's 1983 Bus Passenger Survey

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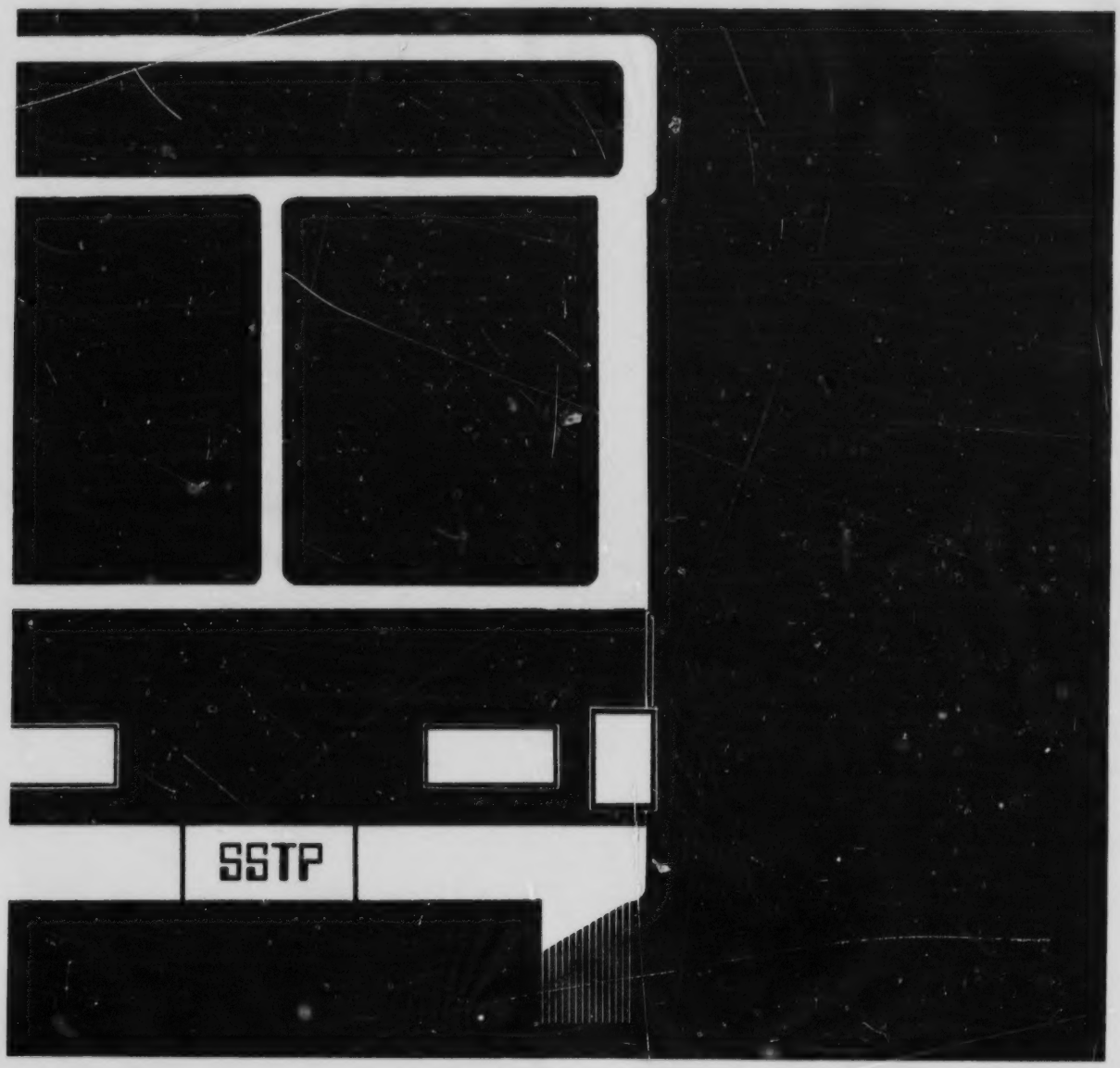
October 1983



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San Antonio's 1983 Bus Passenger Survey

Final Report
October 1983

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Funded by
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FOREWORD

Many transit operators routinely collect ridership data in order to provide a basis for the planning of bus services. Often a survey is conducted of bus riders to determine their riding habits, their views about the quality of current service, and their ideas about how service could be improved. For many transit operators, a bus rider survey is the only method that is used to collect detailed ridership data.

This report was prepared to document the ridership survey that was conducted for VIA Metropolitan Transit in San Antonio, Texas in 1983. The report contains a summary of the major findings of the survey and a summary of the technical approach that was used to design and conduct the survey. We believe that technical summary is well written, comprehensive, and valuable to all transit operators who are involved in ridership surveys. We encourage all transit operators to review this report.

This report was funded through the UMTA Section 8 Technical Studies Program. It is an excellent example of applied technical analysis at the local government level.

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The preparation of this report was financed in part through a planning grant to the San Antonio Metropolitan Planning Organization from the United States Department of Transportation, Urban Mass Transportation Administration under the Act of 1964, as amended.

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SECTION 1

INTRODUCTION

1.1 BACKGROUND

VIA Metropolitan Transit of San Antonio identified in mid 1982 a need to collect ridership data for its bus transit system in order to provide a basis for long and short range planning services. A survey of bus riders was identified as the best option to obtain the needed data and Sterling Systems Incorporated was selected to conduct the work.

The survey, conducted in late February and March 1983, was designed to collect data on:

- Passenger counts
- Origins and destinations
- Trip characteristics, and
- Person characteristics.

The data were coded and tabulated after collection, and were made suitable for analyses by VIA staff.

1.2 CONTENTS OF THIS REPORT

This paper constitutes a final report for the project. Section 2 contains a summary of major findings and Section 3 a report on the study design and conduct (technical approach).

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SECTION 2

SUMMARY OF MAJOR FINDINGS

2.1 INTRODUCTION

The following contains an overview of the major findings of the survey.

2.2 TOTAL PASSENGER BOARDINGS

On an average survey day nearly 108,000 persons rode VIA busses. This total agrees closely with the VIA counts for the time period surveyed. The survey data were expanded to a total revenue of nearly $23,300, which was the average daily revenue for five survey days as counted by VIA.

Passenger boardings by route, time period and fare class are shown in Appendix A. Exhibit 2.2-1 presents total boardings by fare class and time period. About 31 percent of the passengers ride in the AM peak, about 33 percent in the midday off peak, about 28 percent in the evening peak and about 8 percent in the evening off peak.

With respect to fare class, about 8 percent used a Big Pass, 38 percent paid adult fares, 4 percent were elderly, about 2 percent handicapped, about 23 percent paid student fares, less than 1 percent were children or rode free, and nearly 23 percent used transfers.[1]

It is important to note that there were 3738 patrons that needed to make two or more transfers to complete their trips. An origin-destination table has been provided to VIA which enables staff to evaluate the service to the areas where two or more transfers were required.

---

[1]Percent by fare class was estimated excluding persons with unknown fare class, i.e., based on 104,343 boarding passengers.

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EXHIBIT 2.2-1

1983 VIA BUS PASSENGER SURVEY

BOARDINGS BY FARE CLASS & TIME PERIOD

FARE CLASS	AM PEAK 5:00A-8:59A	MIDDAY 9:00A-2:59P	PM PEAK 3:00P-5:59P	EVENING 6:00P-4:59A	TOTAL DAILY
BIG PASS	3278	1866	2924	573	8542
ADULT	10823	13792	11702	3887	40205
ELDERLY	796	2865	921	95	4677
HANDICAPPED	676	925	315	70	1986
STUDENT	9236	6988	6532	1446	24202
CHILD	137	54	233	6	429
FREE	150	89	54	63	356
TRANSFER	7752	7383	6484	2326	23945
UNKNOWN	860	1268	1007	433	3567
ALL CLASSES	33607	35232	30171	8900	107910

NOTE: TABLE MAY NOT TOTAL DUE TO ROUNDING

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2.3 TOTAL LINKED PASSENGER TRIPS

The survey as conducted, counted boardings per surveyed bus and the responses were factored to total boardings by bus. Thus, a person who transferred from one bus to another was counted as two boardings while, in fact, only making one trip.

To obtain a count of passenger trips, boarding passengers who transferred to a survey bus were bypassed in processing.

The result was that there were 83,964 linked passenger trips made on an average weekday.

Not surprisingly, nearly 19% of these trips began in downtown San Antonio (tract 1101). In fact, of the 168 census tracts which had trip origins, nearly 50 percent of origins were concentrated in 20 census tracts which for the most part were close to downtown, and all were inside Loop 410. Exhibit 2.3-1 presents the tracts which had 1 percent or more of the total trip origins.

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EXHIBIT 2.3-1

SUMMARY OF CENSUS TRACTS

WITH 1 PERCENT OR MORE OF TRIP ORIGINS

CENSUS TRACT	PASSENGER TRIPS	PERCENT OF TOTAL
1101	15,917	18.96
1108	1,828	2.16
1202	1,065	1.27
1214	912	1.09
1304	1,118	1.33
1305	1,582	1.88
1306	1,207	1.44
1605	1,288	1.53
1701	1,052	1.25
1702	1,400	1.67
1703	1,599	1.90
1704	1,192	1.42
1709	858	1.02
1713	987	1.18
1802	1,419	1.69
1805	945	1.13
1902	1,089	1.30
1905	966	1.15
1906	1,053	1.25
1909	1,527	1.82
	39,004	46.44

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SECTION 3

TECHNICAL APPROACH

3.1 INTRODUCTION

This section presents the technical approach to the requirements of the project. The procedures were agreed upon by VIA staff and the consultant, and implemented as described in the implementation plan.

The primary approach was that of a sample survey conducted on all of VIA's revenue routes, and that on-board surveyors were utilized to distribute questionnaires and take passenger counts by fare zone and fare class.[1] The data were then expanded by route, time of day, direction and fare class, and adjusted to represent average daily revenues by line.

3.2. SAMPLE DESIGN

3.2.1 Sample Precision

The agreed upon level of precision by route was ± 8% at the 95 percent confidence level, absolute error. This meant that the estimate of any proportion would be ± 8 percent of the total ridership for the route to which the statistic applies. For example, if the survey estimate of the proportion of passengers whose mode of access to the route was auto passenger was 48%, the actual percentage at the 95% confidence level would be 40%-56%.

By being accurate to ± 8% at the route level it was estimated that the precision of system wide charactertistics would be ± 1%, absolute error.

---

[1]Twenty less utilized routes were surveyed by VIA bus drivers.

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For proportions at less than route level the precision will be lower. The estimated absolute error of a proportion can be calculated by counting the number of samples that contributed to the estimate of the proportion, and using the formula shown in Section 3.2.2.

3.2.2 Sample Size

To estimate sample size we assumed a binomial distribution for the worst case (a variable with a mean proportion of .5) and a simple random sample. We then estimated the sample size (n) required for each route would be:

$$\frac{p\,(1-p)\,(Z)^2}{(X-M)^2} = \frac{.5\,(.5)\,(1.96)^2}{(.08)^2} = 150 \text{ responses}$$

Where p = the proportion of respondents answering affirmatively to a question, and:

X = Sample Mean
M = Population Mean
Z = Relevant Z Score (1.96 for 95% Confidence Level)

To actually get 150 responses by route it was necessary to survey passengers on sampled bus trips. The precise number of bus trips which had to be ridden was not known, because the number of responses depended on the response rate on each bus. The response rates varied by route and bus, thus the estimate of the number of busses to ride was based on an estimated response rate of 33% which, from past surveys and conversations with VIA staff, was thought to be a conservative estimate.

Using a response rate of 33%, meant that questionnaires had to be handed out to 450 patrons on each route.

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To determine the bus trip sample by route we used the following formula:

$$N = \frac{d}{r/b}$$

Where

d = the number of questionnaires to be distributed

r = the estimated ridership for the route to be sampled

b = the number of scheduled bus trips on an average weekday

For example if a route had 5,200 boardings per day spread over 260 bus trips, the sample size N was:

$$N = \frac{450}{5200/260} = 22.5$$

We drew a sample using this method, and the initial number of trips selected per route is shown in Exhibit 3.2-1.

The total estimated sample using this methodology was 1536 trips. However, to reduce the possibility of collecting unneeded data, we divided the sample into two parts: The first represented 67% of the estimated required sample, and the second 33 percent. The idea was that if the first two-thirds sample was sufficient for any route the additional one-third sample would not be used.

This did not happen however. Excluding a few exceptions in both directions, the reverse occurred. Due to low <u>useable</u> response rates, supplemental samples had to be drawn to try to increase the number of responses. Thus, we ended up taking 1743 trips for the survey. This was an increase of 13.5%, of the overall sample size (see Exhibit 3.2-1).

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EXHIBIT 3.2-1
SUMMARY OF BUS TRIP SAMPLE BY ROUTE

ROUTE	INITIAL SAMPLE	SUPPLEMENTAL SAMPLE	FINAL SAMPLE
1	20	3	23
2	15	3	18
4	12	5	17
5	22	- 4	18
8	24	10	34
9	23	10	33
10	41	0	41
11	13	9	22
12	18	0	18
14	17	0	17
15	15	7	22
17	27	- 7	20
21	16	0	16
22	18	3	21
24	18	16	34
25	16	25	41
26	14	5	19
28	20	16	36
30	16	0	16
32	13	2	15
34	13	24	37
36	16	3	19
38	29	0	29
42	17	4	21
44	15	10	25
46	23	- 4	19
48	32	0	32
51	15	6	21
52	12	10	22
54	26	7	33
62	16	1	17
64	22	- 3	19
68	12	14	26
74	7	35	42
76	10	7	17
77	17	18	35
79	15	12	27
82	17	10	27
84	21	- 1	20
86	19	- 1	18
87	12	0	12
88	17	- 3	14
90	16	3	19
92	12	11	23
93	22	- 1	21
96	17	1	18
97	21	- 1	20
503	36	0	36
504	19	0	19
505	26	3	29

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EXHIBIT 3.2-1
SUMMARY OF BUS TRIP SAMPLE BY ROUTE
(CONTINUED)

ROUTE	INITIAL SAMPLE	SUPPLEMENTAL SAMPLE	FINAL SAMPLE
508	24	0	24
509	13	0	13
512	18	- 5	13
515	27	- 9	18
516	30	- 5	25
520	10	4	14
524	19	- 2	17
530	27	- 6	21
550	14	- 5	9
551	13	- 4	9
600	52	-14	38
601	25	- 5	20
602	14	0	14
604	19	0	19
608	37	0	37
609	21	0	21
610	20	0	20
611	21	0	21
612	20	- 4	16
613	21	0	21
614	20	- 3	17
615	18	0	18
616	20	0	20
617	20	0	20
630	9	0	9
632	12	0	12
640	17	0	17
648	45	- 3	42
TOTAL	1,536	207	1,743

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On some routes not all the samples were completed satisfactorily, hence the negative values in the exhibit. Generally this was caused by a rejection of trips during the editing process after the field work was complete. In a few cases, the 17 for example, the final 1/3 of the sample was not taken because the response was so high. And, in a few cases, most notably the 600 and 601, the final 1/3 sample was not pursued because the potential impact on the sample rate was so low as to be uneffective; i.e., all trips could have been surveyed with little positive impact on the results.

The actual supplemental rates varied by route, and it is important to note that:

- Where it was obvious an increased sample size would have no more than a marginal effect (500 and 600 routes in particular) we did not make extensive efforts to increase the sample size.

- Nothing could be done to increase the number of responses on routes that had insufficient boardings or had 100% samples.

As can be seen in Exhibit 3.2-2 we substantially exceeded the 450 required pass out on many routes, but some routes still fell short of 150 responses. However, this does not mean accuracy suffered. The formula used to calculate the sample rate as mentioned earlier was for a pure random sample. In an attempt to improve the accuracy the sample was selected as systematic, stratified random sample which may improve accuracy. Thus, a route which has 100 responses (which on a random basis would yield slightly better than $\pm$10% accuracy) may yield an improved accuracy.

While this improved precision could not be estimated in advance, the variance of estimated proportions can be once the data have been collected and expanded. The variance was calculated for selected variables, and is described later in this section.

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EXHIBIT 3.2-2
SUMMARY OF QUESTIONNAIRE
DISTRIBUTION AND RESPONSE

ROUTE	# QUESTIONNAIRE DISTRIBUTED	# USEABLE QUESTIONNAIRES	PERCENT RESPONSE
1	462	119	25.8
2	589	160	27.2
4	630	147	23.3
5	459	135	29.4
8	587	105	17.9
9	531	138	26.0
10	105	53	50.5
11	555	144	25.9
12	119	50	42.0
14	486	175	36.0
15	709	173	24.4
17	231	115	49.8
21	264	102	38.6
22	452	137	30.3
24	799	131	16.4
25	876	215	24.5
26	622	130	20.9
28	724	152	21.0
30	398	105	26.4
32	381	102	26.8
34	867	139	16.0
36	502	147	29.3
38	141	96	68.1
42	458	65	14.2
44	632	187	29.6
46	408	115	28.2
48	191	94	49.2
51	509	97	19.1
52	598	129	21.6
54	412	113	27.4
62	411	89	21.7
64	320	175	54.7
68	686	141	20.6
74	861	159	18.5
76	660	143	21.7
77	652	154	23.6
79	579	127	21.9
82	573	127	22.2
84	420	150	35.7
86	536	199	37.1
87	30	15	50.0
88	410	84	20.5
90	440	133	30.2
92	814	246	30.2
93	236	157	66.5
96	438	129	29.5
97	411	121	29.4
503	36	10	27.8
504	100	30	30.0
505	446	201	45.1

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EXHIBIT 3.2-2
SUMMARY OF QUESTIONNAIRE
DISTRIBUTION AND RESPONSE
(CONTINUED)

ROUTE	# QUESTIONNAIRE DISTRIBUTED	# USEABLE QUESTIONNAIRES	PERCENT RESPONSE
508	270	90	33.3
509	91	38	41.8
512	306	100	32.7
515	325	129	39.7
516	317	39	12.3
520	506	120	23.7
524	306	102	33.3
530	246	73	29.7
550	305	157	51.5
551	265	107	40.4
600	217	38	17.5
601	262	23	8.8
602	64	15	23.4
604	249	74	29.7
608	105	43	41.0
609	45	34	75.6
610	54	31	57.4
611	122	58	47.5
612	155	86	55.5
613	141	62	44.0
614	297	124	41.8
615	37	18	48.6
616	161	82	50.9
617	90	60	66.7
630	37	25	67.6
632	36	20	55.6
640	65	33	50.8
648	310	103	33.2
TOTAL	29,140	8,244	28.3

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3.3 SAMPLE SELECTION

Sample selection was done manually, using the published schedules and the run sheets as provided by VIA. The process used was as follows:

1. The base sample size as discussed in Section 3.2 was determined.

2. All bus trips were numbered from 1 upward.

3. A random "seed" number; i.e., starting point, was selected.

4. The total number of busses was divided by the required number of samples; i.e., the sample interval (I) was determined.

5. The bus trip with the seed number was selected.

6. Every Ith bus thereafter was selected until the required number of bus trips was selected.

For example, if 25 bus trips were required on a route with 250 bus trips and a seed number of 36 was generated, then the 36th trip would be selected first and every 10th trip selected thereafter.

The trips were selected in pairs where there was no interlining and in clusters of four for routes which interlined between two or more routes. For example, on the 1-11 interline combination route a trip on the 1 route was selected, say inbound, and then an out and inbound pair on the 11 was selected and then an outbound trip on the 1 was selected.

3.4 SAMPLE SUFFICIENCY CHECK

Following the initial sample selection a check was made of the sample sufficiency. This was necessitated by the fact that a minimum of two samples was required for each stratification unit before the expansion of the survey results could take place.

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Once the sample was drawn, the trips in each route were assigned a stratum based on the above criteria and counted. The sample was then reviewed for adequacy on a stratum by stratum basis. Where necessary, additional samples were selected randomly using the same procedure as discussed above.

3.5 QUESTIONNAIRE DESIGN

A questionnaire (English and Spanish versions) was designed by VIA and Sterling staff (see Exhibit 3.5-1).

The questionnaire was printed on center folding stock, with the English version on one side and the Spanish on the other. With the exception of geographic data, all questions were self coding. The questionnaire contained a business reply stamp for those patrons who wished to return the questionnaire by mail.

Before field work began a pretest of the questionnaire was made on 4 routes to make certain patrons understood and could respond to the questions.

Questionnaires were serially numbered for control purposes and wrapped in groups of 200 with the beginning serial number of each deck clearly marked on the outside of the package.

It is important to note that the questionnaire was not the only source of information for the survey. On-board enumerators collected data on:

1. Boardings by fare zone;
2. Boardings by fare class;
3. Boardings by time period; and,
4. Boardings by direction of travel.

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ENGLISH Nº 23326

1983 BUS PASSENGER SURVEY

We need to know about the one way trip you are making so we can serve you better. PLEASE COMPLETE THIS SURVEY and place it in one of the specially marked boxes on this bus or drop it in the mail (postage free). Your answer will be kept strictly confidential. THANK YOU.

A. Did you TRANSFER to this bus? 1 [ ] Yes 2 [ ] No If Yes, FROM what route?

B. How did you pay the FARE for this trip?
1 [ ] Big Pass 4 [ ] Handicapped 7 [ ] Police, Postal, VIA employee
2 [ ] Adult (Regular Fare) 5 [ ] Student
3 [ ] Elderly 6 [ ] Child

C. The total amount of the FARE (cash or ticket) you put in the fare box on this bus was $ _____

D. WHERE did you come FROM before you began this trip? (Check ONLY the main ONE)
1 [ ] Home 4 [ ] Shopping 7 [ ] Other (specify _____)
2 [ ] Work 5 [ ] Personal Business
3 [ ] School 6 [ ] Social/Recreational

E. What is the ADDRESS of that place?
_____ TX _____
Street Number and Name or Intersection or Building City Zip Code

F. Where did you get ON this bus?
_____
Intersection

G. How FAR did you travel to the BUS STOP where you got ON this bus?
1 [ ] less than 2 Blocks 3 [ ] 5 Blocks-1 Mile
2 [ ] 3-4 Blocks 4 [ ] Over 1 Mile

H. WHERE are you GOING to on this trip? (Check ONLY the main ONE)
1 [ ] Home 4 [ ] Shopping 7 [ ] Other (specify _____)
2 [ ] Work 5 [ ] Personal Business
3 [ ] School 6 [ ] Social/Recreational

I. What is the ADDRESS of that place?
_____ TX _____
Street Number and Name or Intersection or Building City Zip Code

J. Where will you get OFF this bus?
_____
Intersection

K. Will you TRANSFER to another bus? 1 [ ] Yes 2 [ ] No If yes, TO what route? _____

L. When you get OFF your last bus how will you complete THIS trip?
1 [ ] Walk 3 [ ] Picked up at stop
2 [ ] Drive 4 [ ] Other (specify _____)

M. Was a car, truck or van AVAILABLE to you today to make THIS TRIP? 1 [ ] Yes 2 [ ] No

N. How many CARS, TRUCKS or VANS are kept at your home? (If none, enter 0) _____

O. Including yourself, HOW MANY PEOPLE live in your household? _____

P. What is your AGE?
1 [ ] Under 16 years 3 [ ] 25-34 5 [ ] 45-64
2 [ ] 16-24 4 [ ] 35-44 6 [ ] 65 years or older

Q. What is your SEX?
1 [ ] Female 2 [ ] Male

R. How many years of SCHOOL have you completed?
1 [ ] Less than high school 3 [ ] Some college 5 [ ] More than college
2 [ ] High school graduate 4 [ ] College graduate

S. Are you?
1 [ ] Hispanic 3 [ ] White
2 [ ] Black 4 [ ] Other

DO NOT WRITE IN THIS SPACE

Comments

ESPAÑOL Nº 23326

CUESTIONARIO PARA PASAJEROS DE AUTOBUS 1983

Necesitamos información acerca de este viaje de ida (o vuelta) que Ud. hace hoy, para servirle mejor en el futuro. DE FAVOR COMPLETE ESTE CUESTIONARIO y deposítelo en las cajas designadas junto a las puertas del autobus, o mándela por correo. (No es necesario ponerle estampilla.) Esta información es confidencial. Muchas gracias.

A. ¿CAMBIO Ud. de otro autobus a este? 1 [ ] Sí 2 [ ] No
¿Si la respuesta es sí, DE cuál ruta? _____

B. ¿Cómo pagó su PASAJE para este viaje?
1 [ ] Big Pass 4 [ ] Incapacitado 7 [ ] Empleado de VIA, Correo o Policía
2 [ ] Adulto (Pasaje Regular) 5 [ ] Estudiante
3 [ ] Anciano 6 [ ] Niño

C. En total, la CANTIDAD que depositó (dinero en efectivo o boleto) en la caja de pasaje fue $ _____

D. ¿DE DONDE VINO antes de comenzar este viaje? (Escoja SOLAMENTE la PRINCIPAL)
1 [ ] Casa 4 [ ] Compras 7 [ ] Otro (indique _____)
2 [ ] Trabajo 5 [ ] Negocios Personales
3 [ ] Escuela 6 [ ] Recreación/Sociales

E. ¿Que es la DIRECCION de ese sitio?
_____ TX _____
Numero y Nombre de la Calle o Intersección o Edificio Ciudad Zona Postal

F. ¿Dónde ABORDO Ud. este autobus?
_____
Intersección

G. ¿Cuánta DISTANCIA viajó Ud. a LA PARADA DEL AUTOBUS donde ABORDO?
1 [ ] menos de 2 Cuadras 3 [ ] 5 Cuadras-1 Milla
2 [ ] 3-4 Cuadras 4 [ ] más de una Milla

H. ¿PARA CUAL SITIO VA Ud. en este viaje? (Escoja SOLAMENTE la PRINCIPAL)
1 [ ] Casa 4 [ ] Compras 7 [ ] Otro (indique _____)
2 [ ] Trabajo 5 [ ] Negocios Personales
3 [ ] Escuela 6 [ ] Recreación/Sociales

I. ¿Que es la DIRECCION de ese sitio?
_____ TX _____
Numero y Nombre de la Calle o Intersección o Edificio Ciudad Zona Postal

J. ¿En dónde se va a BAJAR Ud. del autobus?
_____
Intersección

K. ¿Va hacer CAMBIO a otro autobus? 1 [ ] Sí 2 [ ] No
Si la respuesta es sí, ¿A cuál ruta? _____

L. ¿Cuándo se BAJE del último autobus, cómo terminará ESTE viaje?
1 [ ] Caminar 3 [ ] Pasajero en auto
2 [ ] Manejar un automóvil 4 [ ] Otro (indique _____)

M. ¿Hay un carro, pickup, o camioneta DISPONIBLE para que Ud. haga ESTE VIAJE? 1 [ ] Sí 2 [ ] No

N. ¿Cuántos CARROS, PICKUPS o CAMIONETAS tienen en su casa? (Si no tiene vehículos, responga 0) _____

O. ¿CUANTAS PERSONAS viven en su casa (incluyendo Ud.)? _____

P. ¿En cuál grupo de EDAD pertenece Ud.? (Escoja uno.)
1 [ ] Menos de 16 años 3 [ ] 25-34 5 [ ] 45-64
2 [ ] 16-24 4 [ ] 35-44 6 [ ] 65 años o más

Q. ¿Cuál es su SEXO?
1 [ ] Femenino 2 [ ] Masculino

R. ¿Cuál es el último nivel de EDUCACION formal que Ud. terminó?
1 [ ] Sin graduar de preparatoria (high school) 3 [ ] Algo de colegio 5 [ ] Postgraduado (more than college)
2 [ ] Graduado de preparatoria (high school) 4 [ ] Graduado de colegio

S. ¿Ud. es?
1 [ ] Hispano 3 [ ] Anglo
2 [ ] Negro 4 [ ] Otro

Sugerancias

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3.6 DATA COLLECTION

3.6.1 Organization

Exhibit 3.6.1-1 presents the organization used for the field operations. The field operations manager was responsible for all field preparation and data collection tasks.

A quality control team reported directly to the field operations manager, and was responsible for verifying surveyor performance.

There was a logging and records control supervisor who was responsible for schedule preparation, distribution, and the return of all work assignments. This supervisor was responsible for controlling all data and equipment until they were returned from the field.

3.6.2 Training

All field personnel were required to attend a half day, in-office training session. A detailed training manual was distributed and all procedures discussed fully. After the in-office session, surveyors were required to survey two bus trips without a major error before being allowed to work on the survey.

Because supervisory and in-office personnel constituted support staff, they were required to go through the field training so that they would be fully aware of field procedures. We believe this was important because on-bus surveying is difficult, and it is important for office staff to understand what surveyors face when conducting their work.

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ORGANIZATION OF FIELD OPERATIONS

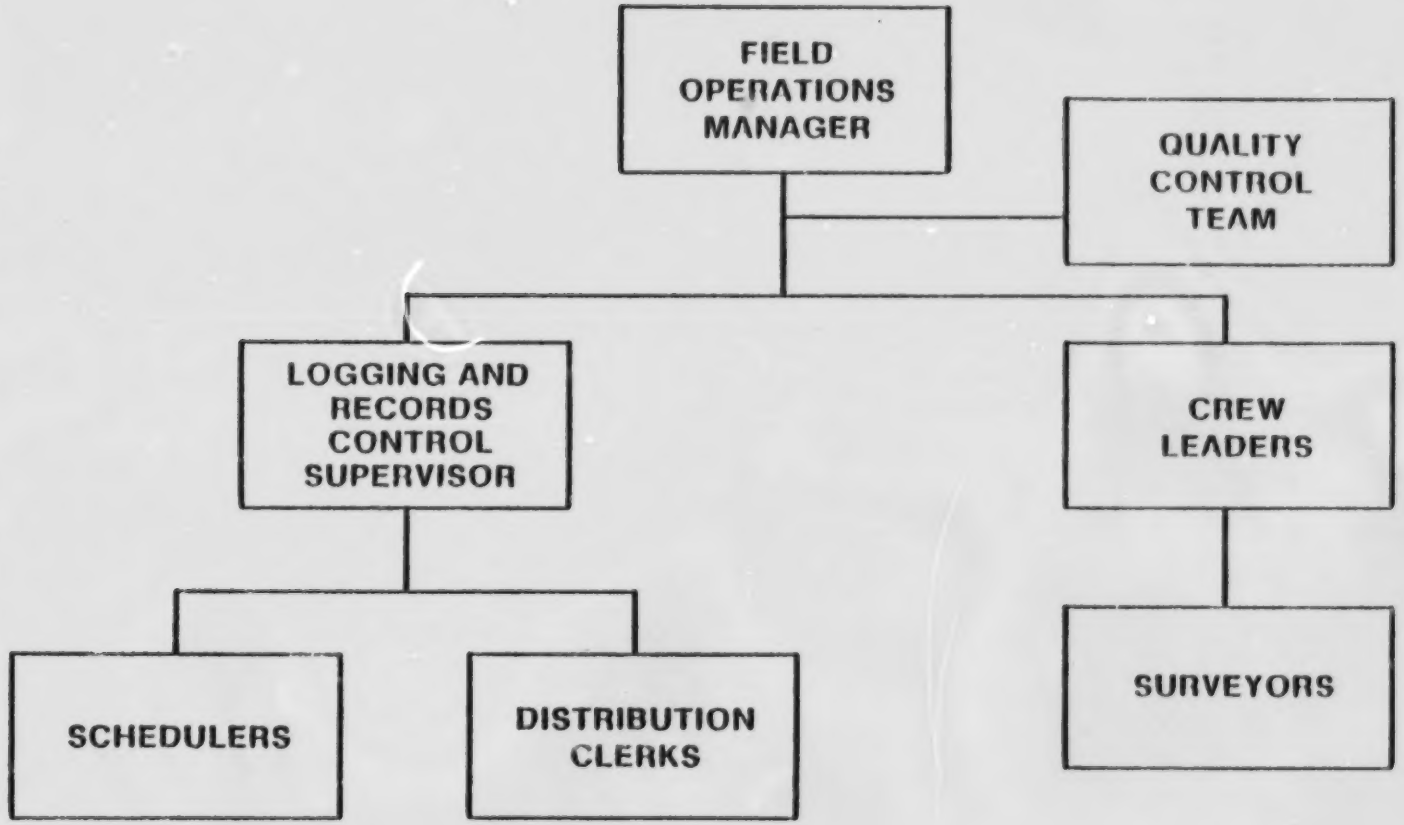

Exhibit 3.6.1-1

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3.6.3 Preparation of Assignments

Surveyor kits were prepared in advance of the survey day. Kits included:

- Assignment Sheet. All work for a surveyor for one day was presented on the Surveyor's Assignment Log (see Exhibit 3.6.3-1). This included:

  1. Assignment number
  2. Surveyor's name
  3. Report location, date, and time; and
  4. Specific instructions for each trip to be surveyed.

- Trip Logs. One trip log for each assigned survey trip was included in the surveyor's kit. It was precoded with the same information as the surveyor's assignment sheet.

- Envelopes. One envelope for each surveyed trip was also included. The envelopes were precoded with pertinent control data (see Exhibit 3.6.3-2) and were used to store the control logs and questionnaires associated with each surveyed trip.

- Pencils. Two boxes of pencils were provided for patron use. The provision of pencils enhanced survey response. (see Exhibit 3.6.3-3)

- Return Boxes. Two return boxes were placed on each survey bus to encourage prompt passenger response. (see Exhibit 3.6.3-3)

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VIA 1983 BUS PASSENGER SURVEY
SURVEYOR'S ASSIGNMENT LOG

SURVEYOR : _____

SUPERVISOR : _____

ASSIGNMENT # : _____

OLD ASSIGNMENT # : _____

REPORT LOCATION : _____

REPORT TIME : _____

REPORT DATE : _____

TRIP NUMBER	BUS RUN	ROUTE NUMBER	START LOCATION	START TIME	END LOCATION	END TIME	ADDITIONAL INSTRUCTION

PREPARED BY: _____ DATE: / /82

CHECKED BY: _____ DATE: / /82

NOTES

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EXHIBIT 3.6.3-1

TRIP ENVELOP

ASSIGNMENT NO. _____ BLOCK NO. _____

TRIP NO. _____ ROUTE NO. _____

SURVEYOR _____ SURVEYOR NO. _____

DAY OF WEEK _____

DATE _____

(MONTH DAY YEAR)

EDITING-CODING LOG					
STATION	DATE	INITIALS	STATION	INITIALS	DATE
A			E		
B			F		
C			G		
D			H		

EXHIBIT 3.6.3-2

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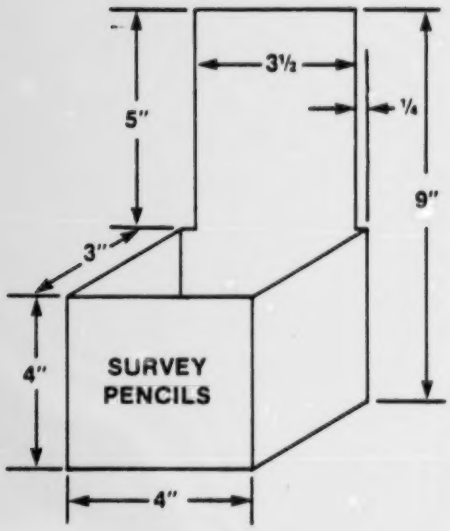
PENCIL AND RETURN BOXES



PENCIL BOX

SURVEY FORMS COLLECTION BOX

EXHIBIT 3.6.3-3

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- Questionnaires. A 1-day supply of questionnaires was included with each assignment.

- Clip Board. An oversized clip board (22" x 15") to hold the surveyor's control log was issued to each surveyor.

- "Today Is Survey Day". A "Today Is Survey Day" sign in English and Spanish was included for placement on the fare box. This was used to alert patrons to the fact a survey was being conducted.

3.6.4 Distribution of Assignments

Surveyors reported directly to survey headquarters to pick up all assignments.

All surveyors were required to return and sign in the prior day's assignment before any new work was issued. All assignments were logged on the master control log as shown in Exhibit 3.6.4-1.

3.6.5 Surveyor's Tasks

A surveyor was assigned to ride each sampled bus trip, and perform the following tasks:

- Distribute Survey Questionnaires. The surveyors issued a survey questionnaire to every boarding patron 5 years of age or older, regardless of fare class or transfer status.

- Tally Boarding Passengers by Fare Class and Fare Zone. The surveyor counted patrons as they boarded by fare class or transfer status for each fare zone in which the bus operated on the sampled trip. Consequently, the surveyor had to be aware of the fare zones in which the bus operated. A trip log (see Exhibit 3.6.5-1) was designed to clearly delineate

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VIA 1983 BUS PASSENGER SURVEY
FIELD CONTROL LOG

ASSIGNMENT NUMBER	OLD ASSIGNMENT NUMBER	TRIP NUMBER	SURVEYOR	BLOCK	ROUTE	TIME	SERIAL #'S		DATE		ACCEPT/REJECT	TO CODING	TO RESCHEDULE
							DECK 1	DECK 2	ISSUED	RETURNED			

EXHBIT 3.6.4-1

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Surveyor's Trip Log

1983 Bus Passenger Survey

Block Number

Route Number

Departure Time

Date of Trip

Day of Trip

Assignment Number

Surveyor

Log Prepared By

Log Checked By

Begin Serial Number

End Serial Number

1st Deck

2nd Deck

Bus Number

Assigned Trip Number _____ of _____

Trip Will Run From _____

To _____

Fare Zone | Serial Number | Time

A.F. | C.F. | T.R. | B.P. | E./H. | S. | P | P

Zone Begins at _____

Zone | Serial Number | Time

A.F. | C.F. | T.R. | B.P. | E./H. | S. | P | P

Zone begins at _____

Zone | Serial Number | Time

R.F. | T.B. | T.R. | T.R.O. | F.P. | E./H. | P | P

Adult Fare	Child	Transfer	Big Pass	Eld-Hand	School	Free

End Serial Number

End Time

Surveyor's Notes

EXHIBIT 3.6.5-1

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fare zone boundaries. This was done to help the surveyor if the driver was uncertain of an exact fare zone break. In the VIA system fare boundary identification was not a problem.

As a control on these counts, survey questionnaires were serially numbered and handed out in sequence. The serial number of the next available questionnaire was recorded at each fare zone boundary to indicate the end of one fare zone and the beginning of the next. By subtraction, these records provided a check on a given surveyor's total passenger count.

- Encourage Passenger Response. Surveyors were instructed to encourage patrons to respond to the survey. They were instructed to courteously point out that pencils were available for patron use and that there were return boxes on the bus for completed survey cards.

- Collection of Survey Returns. Surveyors were responsible for picking up completed questionnaires at the end of each trip. The greater the number of surveys returned on the bus, the easier it was for editors to evaluate the quality of field work being accomplished.

3.6.6 On-Bus Procedures

Exhibit 3.6.6-1 presents a graphic view of the on-bus procedures used by the surveyors on a typical survey day.

The first step was to locate the first bus to be surveyed for the day and board it. Schedules were prepared to allow surveyors ample time to find their assigned bus. Upon boarding the bus, the surveyors verified with the driver that the boarded bus was indeed the bus to be surveyed; i.e., they checked block, route and time.

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ON-BUS PROCEDURES

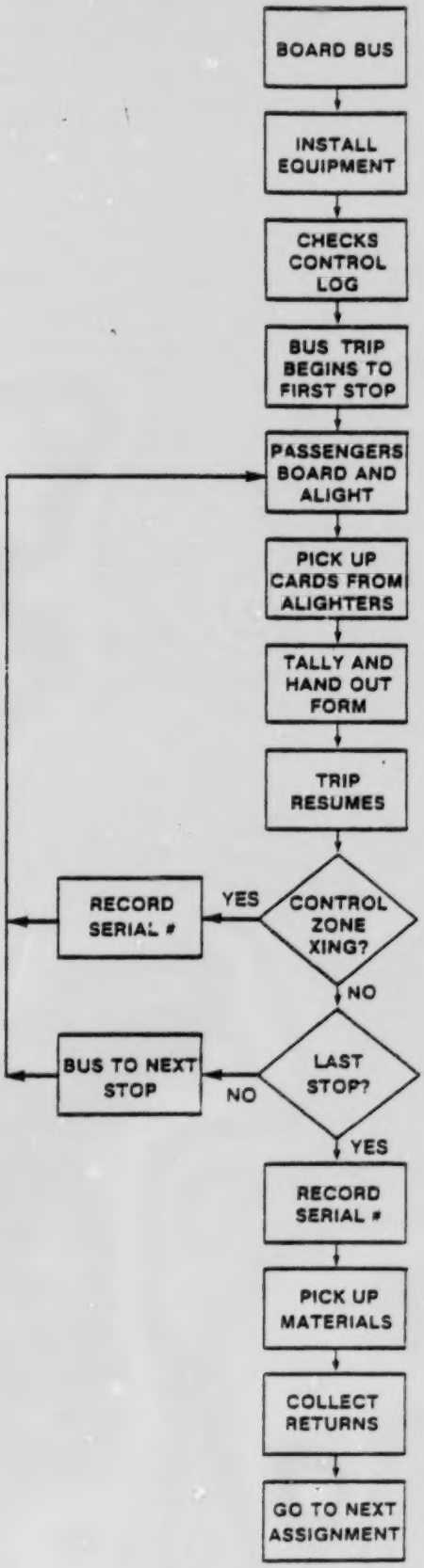

EXHIBIT 3.6.6-1

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After boarding the bus, the surveyor installed all the necessary equipment at the locations shown in Exhibit 3.6.6-2. This included installing the "Today Is Survey Day" sign, point E; the pencil boxes, point C; the return boxes, point B; and the kit and unused material, in back of the driver, point D.

The surveyors were instructed to take the seat behind the driver so they would have a clear view of the boarding patrons. The surveyor then prepared for the trip by checking the control log to make certain that any changes in the block, route, and time data were properly recorded.

At this point the bus proceeded to the first stop.

At the first, and ensuing stops, passengers boarded and alighted the bus. The surveyors began their survey work at this point.

As passengers boarded the bus, the surveyor distributed one questionnaire to each. If a passenger refused a questionnaire, the surveyor set it aside and it was not used. This maintained the integrity of the count of passengers based on serial numbers.

As passengers alighted the bus, the surveyors encouraged them to deposit their questionnaires in the return boxes. When passengers wished to return the questionnaires to the surveyor, the surveyor accepted them and put them in the envelope for the surveyed trip.

After all passengers had boarded and alighted, the bus trip resumed.

On departure from each stop, the surveyor determined if the next stop was located at a fare zone boundary. This was done by checking the log to determine the location of the fare zone boundary and asking the driver if the boundary was located at the next stop.

If the fare zone boundary was located at the next stop, the interviewer recorded the serial number of the next available questionnaire in the

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LOCATION OF SURVEY EQUIPMENT

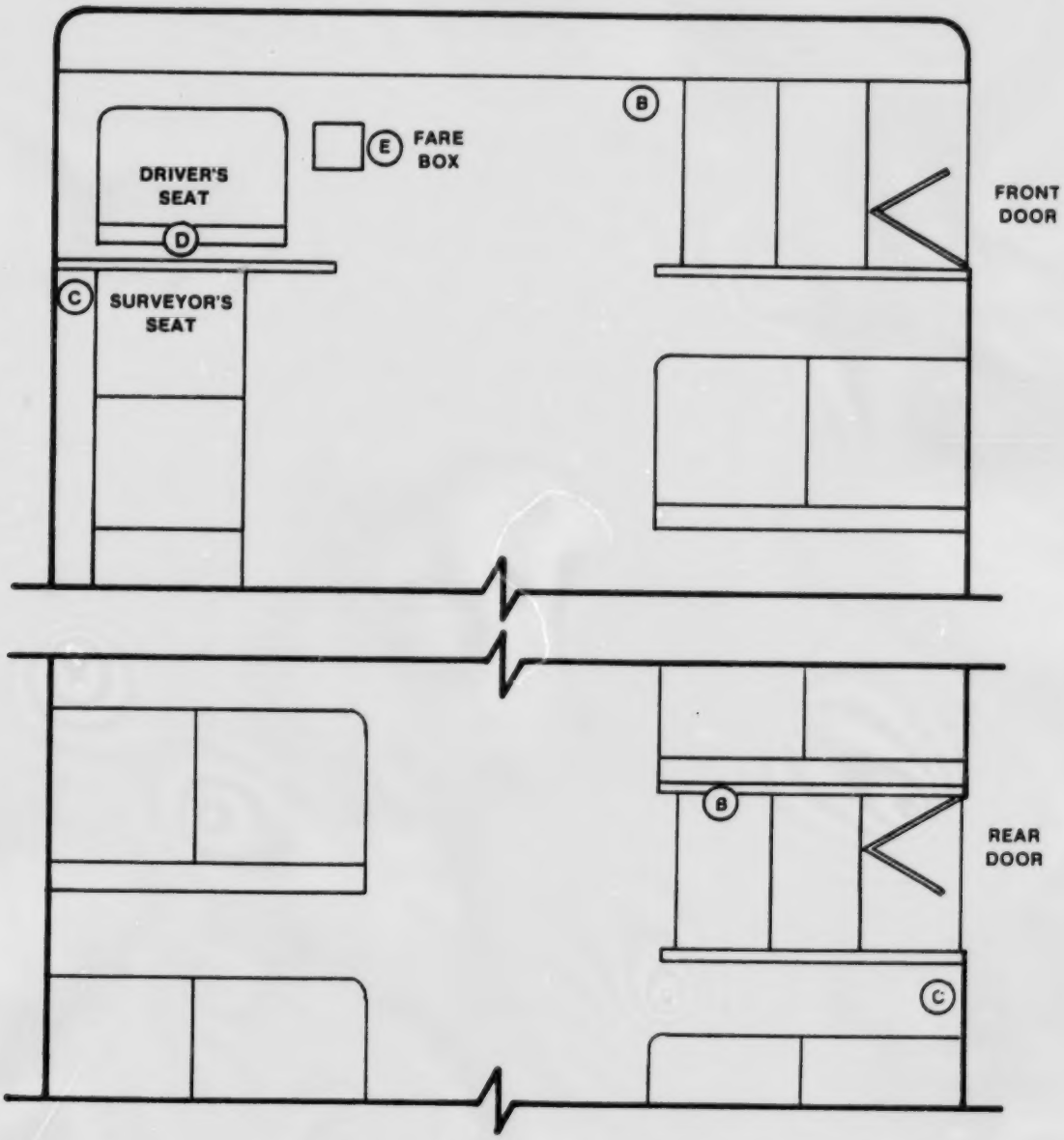

EXHIBIT 3.6.6-2

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space provided on the trip log opposite the fare zone. The fare zone location and the fare zone number were precoded during the assignment/distribution phase. The surveyor also recorded the time the bus reached the fare zone boundary. This was used later to determine whether the bus was in peak or off-peak status when it entered the fare zone.

The surveyor asked the driver to notify him when the last stop of the bus trip had been reached. The survey continued until that time.

At the last stop the surveyor:

- Recorded the serial number of the next available questionnaire in the survey deck;
- Recorded the time the trip ended;
- Picked up all returned questionnaires from the return boxes if he was going to remain on the bus; or
- Picked up all returned questionnaires and all equipment if his next assignment was on another bus.

Logs and used and unused questionnaires for a specific bus trip were always placed in a separate envelope provided for that trip so editors reviewing the trip would not have to work with data which was collected over several trips.

The surveyor either prepared for his next trip on the same bus, or went to the next assigned bus and conducted another survey.

3.6.7 Quality Control

Two factors are crucial to the conduct of a high-quality survey. First, surveyors must ride their assigned busses, and second they must be counting passengers and distributing questionnaires properly.

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Two quality control measures were implemented to ensure the validity of survey field work.

3.6.7.1 Quality Control Team

A team of quality control supervisors was trained to monitor the surveyors' work. These supervisors were assigned surveyors' work to check every day throughout the survey. They were required to ride with each assigned surveyor, review his or her work, and provide assistance and corrective advice. This ensured that surveyors were on their assigned busses and following the correct procedures.

Each quality control supervisor was responsible for the work of the assigned surveyors. To facilitate this, supervisors were provided with daily reports on the performance of each surveyor for whom they were responsible.

3.6.7.2 Review of Surveyor's Work

A team of editors was trained to review surveyors' work. The editors were of supervisory caliber and fully trained in field operations. Within 24 hours of receipt from the field, this team edited all survey work and prepared a daily review of each surveyor's work (see Exhibit 3.6.7.2-1). The editor's work was closely coordinated with that of the quality control team. A more detailed description of the editor's tasks are discussed in Section 3.7 below.

3.6.8 VIA Driver Survey

In an effort to cut down on field costs for lightly patronized routes, VIA agreed to have drivers pass out questionnaires on some routes. In

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VIA 1983 Bus Survey
Editor's Daily Report

SURVEYOR _____ ASSIGNMENT DATE _____

ASSIGNMENT NUMBER _____ EDIT DATE _____

NUMBER OF TRIPS ASSIGNED _____

NUMBER OF TRIPS COMPLETED _____

NUMBER OF TRIPS EDITED _____

NUMBER OF TRIPS ACCEPTED _____

TRIPS NOT ACCEPTED:

NUMBER	BLOCK	ROUTE	TIME	REASON FOR REJECTION
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

OTHER COMMENTS ON SURVEYOR'S PERFORMANCE

EXHIBIT 3.6.7.2-1

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all there were 20 routes where this occurred. They were:

10	503	602	613	632
12	504	608	615	640
21	509	609	616	
38		610	617	
87		611	630	

For these routes the driver was assigned packets of cards which were passed out in order to boarding passengers. The total boarding count was determined based on the number cards issued. The driver called in the serial number of the next available card in his packet each time he was required to call into the dispatcher's office (when the bus was at a terminal point.)

The serial numbers were recorded by the dispatcher (see Exhibit 3.6.8-1) and turned over to survey staff for processing.

The nature of the serial number recording procedure was such that these trips were for the most part round trips and they were factored separately as discussed later in this report.

3.6.9 Survey Period

The survey was conducted Monday through Friday from February 28, 1983 to March 25, 1983, except for the week of March 21-22 (Spring Break).

3.7 DATA CODING AND CONVERSION

This step entailed the coding of trip logs and survey responses and their conversion to a computer-readable format.

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EXHIBIT 3.6.8-1

DISPATCHER'S RECORDING FORM

Form 4018

VIA METROPOLITAN TRANSIT
SUPERVISOR'S SERVICE REPORT

DAY Wednesday DATE 3-16 19 83 BY _____ ST. COND. ✓

LINE 60i PLACE Hoefgen - Commerce WEATHER _____

INBOUND/OUTBOUND A.M./P.M. INBOUND/OUTBOUND A.M./P.M.

BUS	BLK.	Hoe - DUE Com	TIME AR	TIME LV	PASSENGERS AR	PASSENGERS LV	PASSENGERS ON/OFF	SERIAL Number	BUS	BLK.	TIME DUE	TIME AR	TIME LV	PASSENGERS AR	PASSENGERS LV	PASSENGERS ON/OFF
	1	242						29056								
	1	301						29054								
	1	320						29055								
	1	340						29055								
	1	400						29058								
	1	420						29057								
	1	440						29054								
	1	500						29062								
	1	520						29061								
	1	540						29060								
	1	557						29066								

VIA METROPOLITAN TRANSIT RECEIVED Mar 15 1983 PLANNING DEPT.

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3.7.1 Coding

Data were coded using a station coding system (see Exhibit 3.7.1-1). A station system is one where similar tasks are accomplished by one group of coders.

3.7.1.1 Edit Logs

The activities that took place at the four stations in the log coding process are outlined below.

- Station A. The first step in the log coding process was to verify that the information on the log was accurate and sufficient for factoring purposes. To be acceptable for factoring, each log had to contain:

  - Complete tallies of boarding passengers by fare zone and fare class;

  - Correct definition of fare zone boundaries as indicated by the recorded serial numbers;

  - Data for the assigned trips (substitute trips were not allowed); and

  - Accurate control data (i.e., block, route, and time of departure).

- Station B. Once the logs were certified as acceptable according to the criteria in Station A, an editor coded the passenger count data in the spaces provided. Items coded included:

  - Number of transfers by fare zone; and

  - Boardings by fare class and fare zone.

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STATION CODING SYSTEM

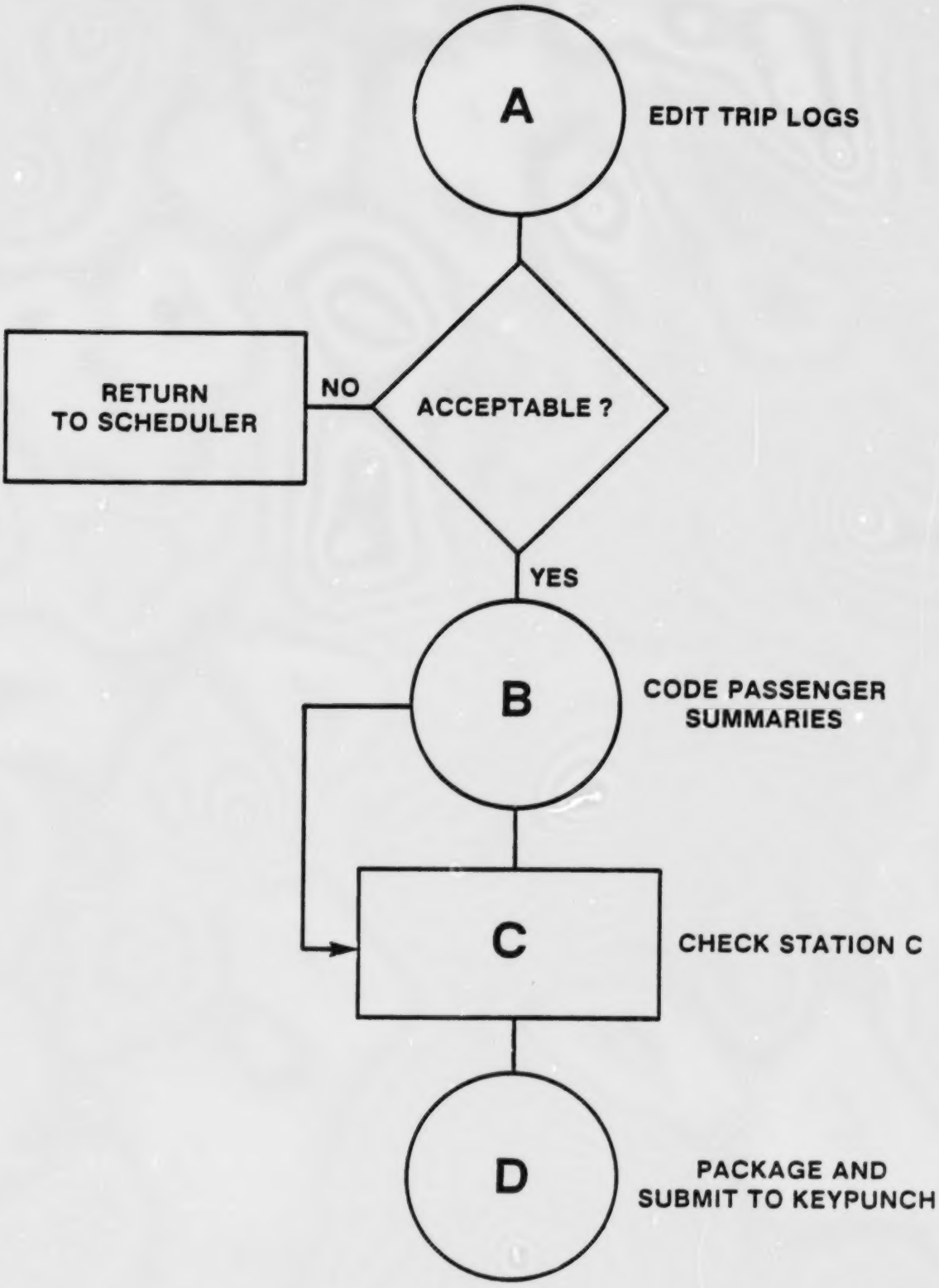

EXHIBIT 3.7.1-1

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- Station C. A 100 percent check of the work completed at Station B was made at Station C, to ensure the accuracy of the count data.

- Station D. At Station D, completed logs were packaged, and logged for keypunching.

3.7.1.2 Survey Responses

The questionnaire, with the exception of stops on and off, and origins and destinations was self coding. For the stop off-on coding VIA prepared a stop index (by route) which provided a unique number for each bus stop in the system. With the exception of the downtown area, the index was organized by routes so the coder could look up a particular street and find all the intersecting streets on any given route.

For origins and destinations, census tracts outside of the CBD and census tracts and blocks inside the CBD were used. The guide prepared by Trinity College and maps prepared by VIA staff were used, and VIA prepared a block guide in a similar format for the CBD block system.

The coding process for the responses was as follows:

- Station A. Code stop on and off.

- Station B. At Station B, a sample (12.5%) of all coders' work was checked to ensure that no systematic coding errors were being made and no coder's error rate was unacceptably high (over 2.5%). Coders whose work was unacceptable were retrained or dismissed.

- Station C. Code origins and destinations.

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- o Station D. At Station D, a sample (12.5%) of all coders' work were checked to ensure that no systematic coding errors were being made and no coder's error rate was unacceptably high (over 2.5%). Coders whose work was unacceptable were retrained or dismissed.

The coding of responses turned out to be a much larger task than anticipated. It was most everyone's contention prior to the survey start-up that quantity of response would probably not be a problem for the survey. However, this turned out not to be the case. As it became evident that response was lower than anticipated, an increased effort was made to qualify difficult-to-code responses. This type of response can take up to 10-15 minutes to code, which is an inordinate length of time.

3.7.2 Data Conversion

All logs and survey responses were converted to a machine-readable format so that computer processing could be accomplished. A complete verification of keyed data was made as a quality control measure for the conversion process.

The data were actually keyed using a Nixdorf minicomputer owned by Sterling.

3.8 DATA PROCESSING

3.8.1 Data Editing

3.8.1.1 Survey Responses

The survey responses were edited to check for illegal codes and illegal or unreasonable combinations of codes. For example, if the allowable range of codes for a question was 1 through 5, and an 8 was entered, the response would be rejected and sent to the coding staff for correction. The final set of edit checks are shown in Exhibit 3.8.1.1-1.

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EXHIBIT 3.8.1.1-1

URVEY RESPONSE EDIT CRITERIA

SUMMARY OF RECORD FIE DS AND EDIT CHECKS

All fields are checked for valid numeric value and range or table checked for valid field defirition.

FIELD NAME	COLUMNS	CHECK
SERIAL NUMBER	1-5	RANGE 10001-55000
ORIGIN TRANSFER	6	RANGE 1, 2 OR 9
FROM ROUTE	7-9	999 OR VALID NUMBER
FARE CLASS	10	RANGE 1 - 7 OR 9
PURPOSE AT ORIGIN	11	RANGE 1 - 7 OR 9
DISTANCE TO ORIGIL STOP	12	RANGE 1 - 4 OR 9
PURPOSE AT DESTIN TION	13	RANGE 1 - 7 OR 9
DESTINATION TRANSFER	14	RANGE 1, 2 OR 9
TO ROUTE	15-17	999 OR VALID NUMBER
MODE AT DESTINATION	18	RANGE 1 - 4 OR 9
AUTOS AVAILABLE	19	RANGE 1, 2 OR 9
TOTAL AUTOS AT HOME	20	RANGE 0 - 9
TOTAL PERSONS IN HOUSEHOLD	21	RANGE 0 - 9 (0 is NR)
PASSENGER'S AGE	22	RANGE 1 - 6 OR 9
PASSENGER'S SEX	23	RANGE 1, 2 OR 9
EDUCATION	24	RANGE 1 - 5 OR 9
RACE	25	RANGE 1 - 4 OR 9
ORIGIN TRACT	26-31	VALID TRACT NUMBER
ORIGIN BLOCK	32-34	0 OR VALID NUMBER
DESTINATION TRACT	35-40	VALID TRACT NUMBER
DESTINATION BLOCK	41-43	0 OR VALID NUMBER
"STOP ON" CODE	44-47	RANGE 1 - 6026
"STOP OFF" CODE	48-51	RANGE 1 - 6026
FARE (IN CENTS)	52-54	999 OR FARE FOR CLASS
ROUTE OF ISSUE	55-57	999 OR VALID NUMBER
TRIP START TIME		
AM OR PM	53	1 OR 2
HOUR	59-60	00-12
MINUTES AFTER HOUR	61-62	00-59

*Note: 9's where indicated were used for unknown fields. Otherwise the codes as shown are those as contained in the survey questionnaire.

No questionnaire with an invalid or incomplete stop or geographic code was retained in the files.

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3.8.1.2 Trip Logs

Trip logs were also extensively edited during this phase. The checks made on the trip logs are shown in Exhibit 3.8.1.2-1.

3.8.1.3 Interrecord Comparisons

The sample, survey responses, and trip log files were merged before the sample was expanded. During this process, records were checked to verify that information which should be common to all files was, in fact, the same. This process is discussed in greater detail in subsection 3.8.2.1.

3.8.2 Expansion of the Sample

Exhibit 3.8.2-1 shows the tasks which were accomplished in order to get an expanded file of bus and passenger trips which accurately represented all passenger trips made on an average weekday in the VIA system.

3.8.2.1 Merge Files

The following three files (see Appendix B for full description) were merged during this step:

- Trip log file;
- Survey response file; and
- Sample file.

The first step in the process was to compare the sample and trip log files. The stratum characteristics (direction, time of day) were taken from the sample file and appended to the log file for use later in the factoring process. At the same time, the trip log control information (block, route, departure time) was compared with the sample file. When the two files did not match, the log was rejected and returned to the log coders for correction.

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EXHIBIT 3.8.1.2-1

TRIP LOG EDIT CRITERIA

SUMMARY OF INPUT RECORD FIELDS AND EDIT CHECKS

All fields are checked for valid numeric value and range or table checked for valid field definition.

FIELD NAME	COLUMNS	DEFINITION CHECK
BLOCK	1-2	RANGE 1 - 38
ROUTE	3-5	VALID ROUTE NUMBER
SCHEDULED START TIME	6-10	NONE
SURVEY DATE	11-14	RANGE 2/28 THRU 4/01
SURVEY DAY	15	RANGE 1 - 5
MAIN BEGIN SERIAL NUMBER	16-21	RANGE 10001 - 55000
MAIN ENDING SERIAL NUMBER	22-27	RANGE MAIN BEGIN - 55000
RESUPPLY BEGIN SERIAL	28-33	RANGE 10001 - 55000 or 999999
RESUPPLY ENDING SERIAL	34-39	RANGE RESUPPLY BEGIN - 55000 or 99999
BUS NUMBER	40-43	NONE
FIRST ZONE RECORD	44-71	
FARE ZONE	44-45	VALID FARE ZONE FOR ROUTE
ZONE BEGIN SERIAL NUMBER	46-51	IN RANGE OF MAIN OR RESUPPLY DECK
ZONE BEGIN TIME	52-56	GE SCHED START TIME & LT END TIME
BOARDING COUNT - ADULT	57-59	FLAGGED IF GT 50
BOARDING COUNT - CHILD	60-61	FLAGGED IF GT 50
BOARDING COUNT - TRANSFER	62-63	FLAGGED IF GT 50
BOARDING COUNT - BIG PASS	64-65	FLAGGED IF GT 50
BOARDING COUNT - E&H	66-67	FLAGGED IF GT 50
BOARDING COUNT - STUDENT	68-69	FLAGGED IF GT 50
BOARDING COUNT - FREE	70-71	FLAGGED IF GT 50
SECOND ZONE RECORD	72-99	SEE FIRST ZONE RECORD
THIRD ZONE RECORD	100-127	SEE FIRST ZONE RECORD
DECK NEXT SERIAL AT END	128-133	RANGE 10001 - 55000
TRIP ENDING TIME	134-138	FOR ROUTE 550 & 551 LT START TIME + 220 MIN. FOR OTHER ROUTES RANGE START TIME + 8 TO START TIME + 80

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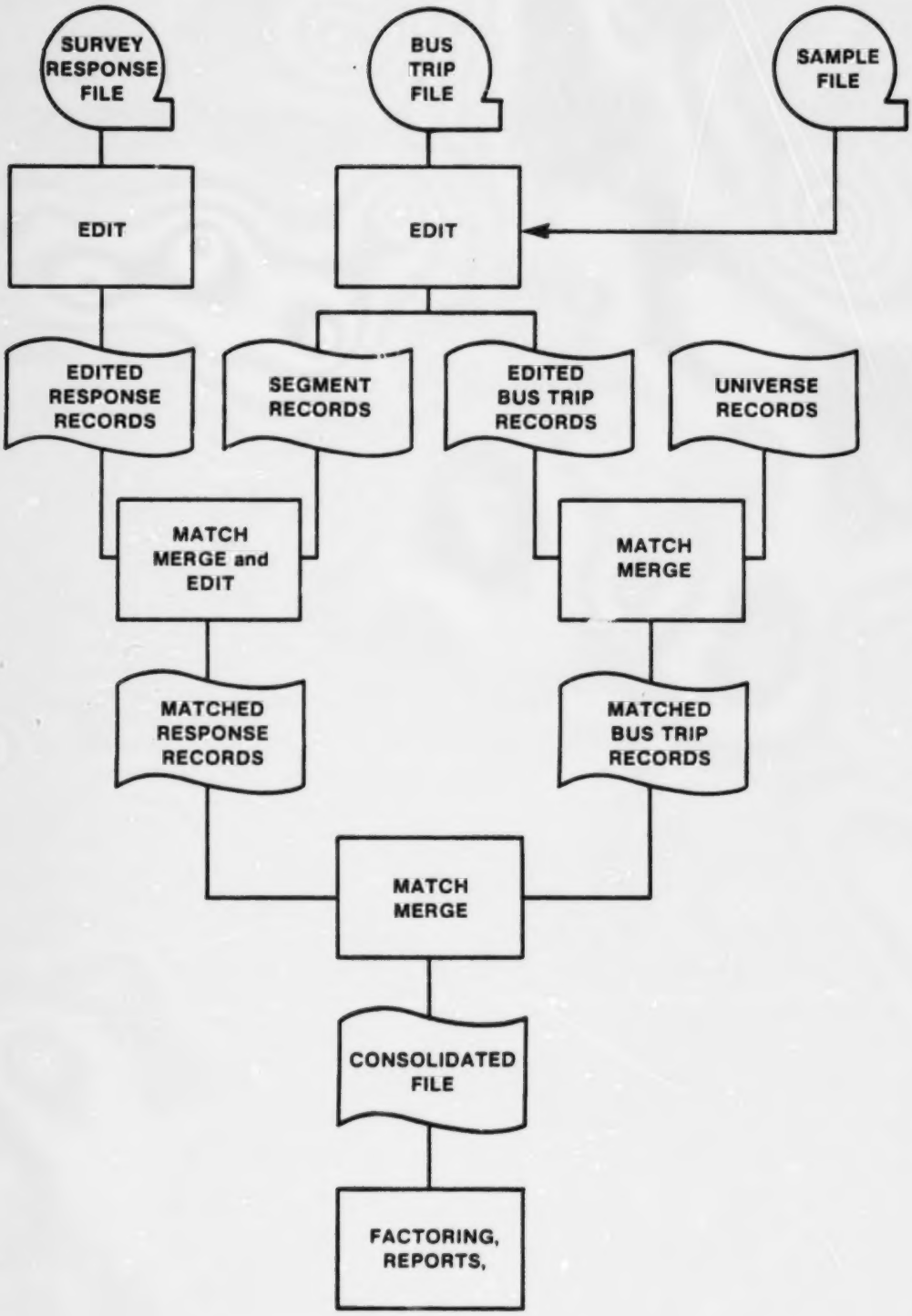
EXHIBIT 3.8.2-1



Data Processing Flow Chart

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Following the sample-trip log match, a trip segment file was created from the combined file created in the first step. Bus trip data were broken down into one record for each segment (fare zone) in which the bus operated. The segment records contained the block, route, departure time and direction of the bus, and the beginning and ending serial numbers of the cards handed out in the segment.

The trip segment and response files were then sorted on serial number and matched. Log data were appended to each response record which fell into the serial number range of a trip segment forming a combined bus trip response file. Response records which did not match any trip segment record were checked to determine the reason for the no-match and corrected or rejected depending on the type of error.

Because the segment file contained records which each had a unique range of serial numbers, a response could only match one segment.

3.8.2.2 Calculation of Factors

Exhibit 3.8.2.2-1 presents the steps required to expand the survey data to represent all passenger trips made on an average day. The following three factors were calculated for each passenger response:

- Bus trip factor;
- Response factor (by fare zone and fare class); and
- Revenue adjustment factor.

The methods for calculating these factors are described in the following subsections.

3.8.2.2.1 Bus Trip Factor

To enhance accuracy, bus trips were aggregated into homogeneous groups (strata) before factoring. The idea was to group trips which were essentially the same in character, and thereby improving the results. Bus trips were grouped into the following strata:

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SAMPLE EXPANSION PROCESS

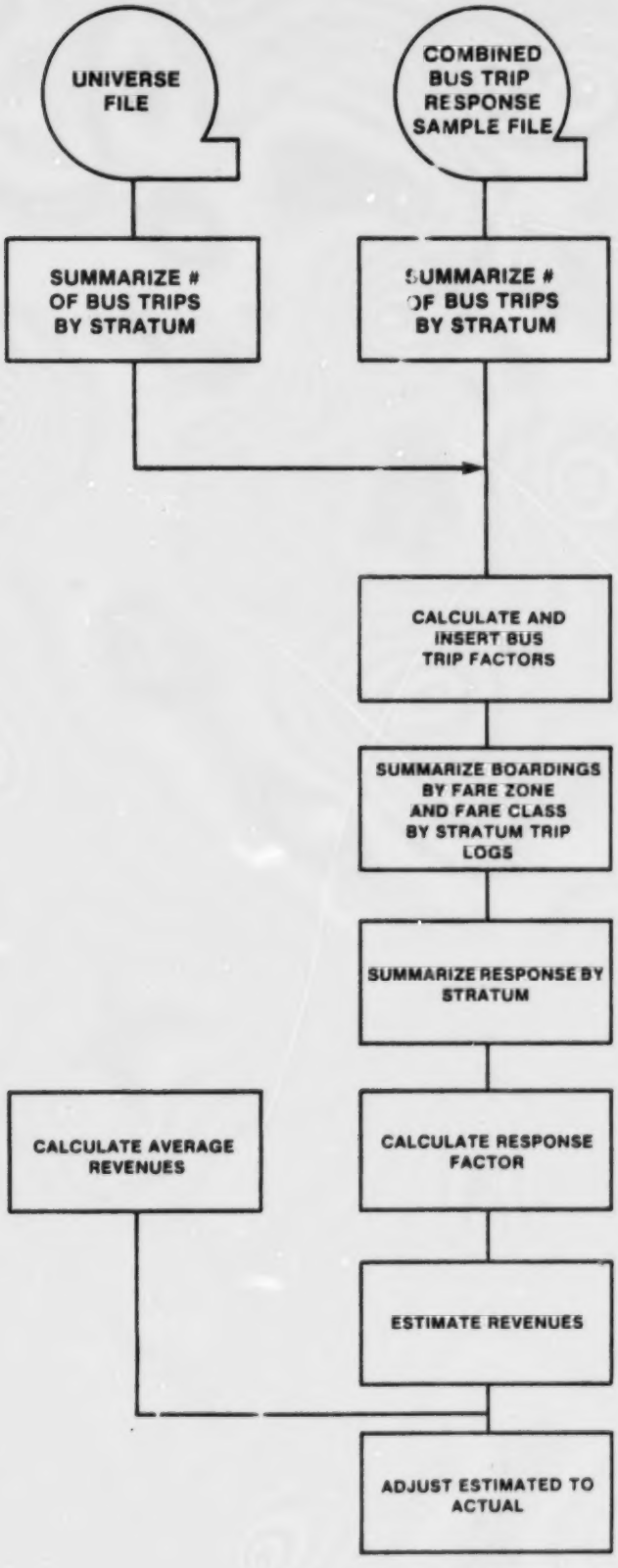
UNIVERSE FILE
COMBINED BUS TRIP RESPONSE SAMPLE FILE
SUMMARIZE # OF BUS TRIPS BY STRATUM
SUMMARIZE # OF BUS TRIPS BY STRATUM
CALCULATE AND INSERT BUS TRIP FACTORS
SUMMARIZE BOARDINGS BY FARE ZONE AND FARE CLASS BY STRATUM TRIP LOGS
SUMMARIZE RESPONSE BY STRATUM
CALCULATE AVERAGE REVENUES
CALCULATE RESPONSE FACTOR
ESTIMATE REVENUES
ADJUST ESTIMATED TO ACTUAL

EXHIBIT 3.8.2.2-1

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Time

1. 5:00 a.m. to 8:59 a.m. (a.m. peak)
2. 9:00 a.m. to 2:59 p.m. (midday off-peak)
3. 3:00 p.m. to 5:59 p.m. (p.m. peak)
4. 6:00 p.m. to close (evening off-peak)

Direction

1. inbound
2. outbound
3. round trip (VIA sample)

Note: The direction designation on some trips was arbitrary, if the bus did not enter the downtown.

Route

Each route was assigned a separate stratum.

The bus trip factor for each stratum was calculated by dividing the total number of bus trips by the number of surveyed bus trips. For example, if there were 28 total trips and 4 surveyed bus trips in a stratum, the bus trip factor would be 7.

In other words, the weight representing the ratio of the number of bus trips in stratum i to the number of sampled bus trips in stratum i or

$$W_i = \frac{M_i}{N_i}$$

was calculated where:

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n_i = number of sampled bus trips in stratum i

M_i = number of bus trips in stratum i.

3.8.2.2.2 Response Factor

It is well known that people respond differently based on their education, income, age and other socio-economic factors. This is known as response bias. To overcome response bias, passenger responses were stratified by fare class and fare zone of boarding.

Passenger responses were factored for an entire stratum rather than on an individual bus trip basis. While it is possible to factor on a trip by trip basis, insufficient response within a single bus, fare zone and fare class can cause skewed results if there are cells with no response. By summarizing the responses across one entire stratum, this problem was minimized.

The response factors were calculated by summarizing the surveyor counts by fare zone and fare class, including transfers for an entire stratum, and dividing each by the sums of the responses for the equivalent categories in that stratum.

In other words the response factor was a weight representing the ratio of the number of observed bus passengers in a given fare class and fare zone on a given bus route to the number of responding passengers in that fare class and fare zone and on a bus, or

$$W_{ifzj} = \frac{N_{ifzj}}{n_{ifzj}}$$

Where

N_{ifzj} = number of observed revenue passengers boarding bus j in fare zone z of fare class f in stratum i.

n_{ifzj} = number of responding passengers from bus j, fare zone z, fare class f, in stratum i.

3.8.2.2.3 Revenue Adjustment Factor

The last step in the expansion process was to adjust the survey results to counted revenues during the survey period. This was accomplished by first calculating average daily revenues (supplied by VIA) and then calculating estimated revenues from the survey results. The latter was done by multiplying the fare paid, the bus trip factor, and the response factor for each record and accumulating by route. The adjustment factor was the quotient of the known route revenues divided by the estimated revenues.

3.8.2.2.4 Final Combined Factor

A final combined factor was created for processing the results. This factor was calculated by multiplying the response, bus trip and revenue adjustment factors. It is the only factor which should be used for summarizing results.

3.9 Verification of Results

As described earlier, the results of the sample survey were expanded to represent external control data (bus trips, boarding passenger counts and collected revenue). In all cases, these adjustments were made at the route level or below (route, time period, direction or route, time period, direction, fare class strata). Application of systematic adjustments was avoided in order to maintain all possible accuracy at the route level.

The study design for the survey indicated that absolute accuracy of $\pm$ 8 percent at the 95 percent confidence level would be sought at the route level and that systemwide accuracy of $\pm$ 1 percent absolute was likely. In order to test for actual accuracy levels in the final results, two passenger attribute variables were tested at the route and system levels.

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3.9.1 Statistical Methodology

Both attributes (age and access distance) were collected by asking passengers to identify the category into which they fell. For age, the categories were:

1. Under 16 years
2. 16-24
3. 25-34
4. 35-44
5. 45-64
6. Over 64

and for access distance they were:

1. Less than 2 blocks
2. 3-4 blocks
3. 5 blocks - 1 mile
4. Over 1 mile

The appropriate method for statistical analysis of such categorical variables is to estimate the proportion of the total population in each category and compute the confidence of that estimate.

This consists of 4 separate analytical steps:

1. Compute estimated proportion of population.

$$p_c = \frac{p_c}{\sum_{i=1}^{n} p_i}$$

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where

p_c is the estimated proportion of the population with attribute c

P_c is the estimated number of persons with attribute c

i is the attribute category index

P_i is the estimate number of persons in category i.

2. Compute the total number of responding passengers.

$$SP = \sum_{i=1}^{n} S_i$$

where

SP is the total number of responding passengers

S_i is the number of respondents with attribute i

3. Compute the Standard Error of Proportion

$$SE_c = \sqrt{\frac{p_c q_c}{SP}}$$

where

SE_c is the Standard Error of Proportion for attribute c

p_c is the estimated proportion of the population with attribute c

q_c is 1 - p_c

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4. Compute the 95% Confidence Level

$$CL_C = SE_C Z$$

where

Z is the Z score for the confidence level (1.96 for 95%)

This sequence of steps was completed for each test variable at the route and system levels. The results of these analyses are described below.

3.9.2 Route Accuracy

Tables describing the details of the route analysis have been delivered to VIA. Exhibit 3.9.2-1 shows summary accuracy statistics derived from these detailed tables by attribute and route. This exhibit clearly indicates that the target accuracy level was attained and for many routes was substantially improved.

Accuracy below $\pm$ 8% was achieved for all routes where valid responses in excess of about 100 were received. Earlier discussion indicated that 150 responses would be required to achieve this accuracy for a simple random sample. The significance of reduction in response required to achieve desired accuracy demonstrates the benefit of the sample stratification process.

3.9.3 System Accuracy

Exhibit 3.9.3-1 describes the precision of the selected variables at the system level. Again the expected accuracy level ($\pm$ 1% absolute) was substantially improved upon. The average accuracy of the proportions is $\pm$ .75% for age and $\pm$ .86% for distance.

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EXHIBIT 3.9.2-1
SUMMARY STATISTICS FOR ROUTE PRECISION

		AGE		ACCESS DISTANCE	
ROUTE	TOTAL RESPONSE	VALID RESPONSE	AVERAGE ACCURACY	VALID RESPONSE	AVERAGE ACCURACY
1	119	117	.0619	116	.0564
2	160	155	.0540	156	.0592
4	147	141	.0546	144	.0631
5	135	134	.0585	133	.0624
8	105	101	.0660	104	.0686
9	138	136	.0546	134	.0544
10	53	51	.0837	53	.0958
11	144	140	.0565	143	.0672
12	50	50	.0789	50	.1096
14	175	170	.0502	171	.0580
15	173	168	.0521	169	.0602
17	115	114	.0586	115	.0737
21	102	101	.0631	101	.0643
22	137	126	.0555	134	.0618
24	131	127	.0612	130	.0678
25	215	207	.0469	204	.0553
26	130	126	.0568	126	.0684
28	152	145	.0558	148	.0621
30	105	99	.0612	103	.0765
32	102	95	.0666	101	.0701
34	139	134	.0566	133	.0692
36	147	140	.0541	144	.0643
38	96	94	.0640	93	.0854
42	65	61	.0848	64	.0852
44	187	181	.0485	184	.0562
46	115	110	.0540	114	.0709
48	94	94	.0565	93	.0791
51	97	94	.0608	95	.0799
52	129	126	.0565	127	.0668
54	113	109	.0648	110	.0630
62	89	88	.0699	88	.0799
64	175	172	.0438	172	.0627
68	141	136	.0554	136	.0673
74	159	149	.0532	157	.0610
76	143	141	.0565	142	.0666
77	154	150	.0558	150	.0576
79	127	119	.0575	124	.0642
82	127	125	.0604	125	.0721
84	150	140	.0575	149	.0618
86	199	196	.0467	194	.0572
87	15	15	.1427	15	.1954
88	84	79	.0734	80	.0900
90	133	127	.0589	131	.0685
92	246	235	.0429	234	.0493
93	157	157	.0387	156	.0562
96	129	124	.0621	126	.0668
97	121	116	.0634	116	.0733
503	10	10	.1462	10	.2642
504	30	27	.1093	30	.1544
505	201	196	.0457	194	.0547
508	90	86	.0686	89	.0841

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EXHIBIT 3.9.2-1

Continued

SUMMARY STATISTICS FOR ROUTE PRECISION

ROUTE	TOTAL RESPONSE	AGE		ACCESS DISTANCE	
		VALID RESPONSE	AVERAGE ACCURACY	VALID RESPONSE	AVERAGE ACCURACY
509	38	37	.1125	35	.1297
512	100	97	.0647	96	.0836
515	129	127	.0597	125	.0705
516	39	38	.1124	37	.1101
520	120	120	.0591	117	.0709
524	102	99	.0659	100	.0801
530	73	73	.0775	72	.0918
550	157	156	.0483	155	.0667
551	107	106	.0535	104	.0826
600	38	37	.1039	38	.1127
601	23	22	.1167	23	.1582
602	15	15	.1310	14	.1430
604	74	70	.0756	70	.0946
608	43	43	.0895	43	.1166
609	34	34	.0903	33	.1188
610	31	31	.0919	31	.1446
611	58	58	.0827	56	.0929
612	86	83	.0647	85	.0815
613	62	61	.0795	61	.0845
614	124	119	.0569	121	.0687
615	18	17	.0754	18	.1399
616	82	81	.0679	81	.0852
617	60	58	.0716	56	.0998
630	25	25	.1406	22	.1411
632	20	20	.1497	19	.0989
640	33	33	.1123	31	.1420
648	103	101	.0669	97	.0819

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EXHIBIT 3.9.3-1

PRECISION OF PASSENGER ATTRIBUTES

AT THE SYSTEM LEVEL

ATTRIBUTE	ESTIMATED PROPORTION OF POPULATION	SAMPLE SIZE	STANDARD ERROR OF PROPORTION	95% CONFIDENCE INTERVAL
AGE				
Under 16	.0730	624	.0029	± .0057
16-24	.3649	2982	.0054	± .0105
25-34	.2491	1894	.0048	± .0094
35-44	.1191	939	.0036	± .0071
45-64	.1455	1203	.0039	± .0076
Over 64	.0484	353	.0024	± .0047
TOTAL/AVERAGE		7995		± .0075
ACCESS DISTANCE				
Less than 2 blocks	.5362	4375	.0055	± .0108
3-4 blocks	.1849	1377	.0043	± .0084
5 blocks - 1 mile	.1164	872	.0036	± .0071
Over 1 mile	.1626	1426	.0041	± .0080
TOTAL/AVERAGE		8050		± .0086

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3.9.4 Conclusion

The accuracy levels evident in the passenger survey results indicate that a data base consistent with VIA's objectives has been developed and is now available for service analysis, planning and other uses. The levels of accuracy demonstrated for age and access distance, two unrelated passenger attributes, provides a justifiable basis for expecting similar accuracy in other passenger attributes.

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APPENDIX A

BOARDING PASSENGERS BY ROUTE,

TIME PERIOD,

AND FARE CLASS

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1983 VIA BUS PASSENGER SURVEY

BOARDING PASSENGERS BY ROUTE, TIME PERIOD & FARE CLASS

ROUTE	FARE CLASS	AM PEAK 5:00A-8:59A	MIDDAY 9:00A-2:59P	PM PEAK 3:00P-5:59P	EVENING 6:00P-4:59A	ALL PERIODS
1	BIG PASS	45.376	8.334	29.169	11.112	93.991
	ADULT	197.937	151.402	121.306	9.260	479.905
	ELDERLY	29.260	91.673	4.167	0.000	125.100
	HANDICAPPED	5.926	0.000	0.000	0.000	5.926
	STUDENT	124.091	40.279	59.425	13.890	237.685
	CHILD	8.334	0.000	0.000	0.000	8.334
	FREE	11.112	0.000	9.879	0.000	20.991
	TRANSFER	96.308	76.395	32.874	9.029	214.606
	UNKNOWN	15.974	0.000	0.000	0.000	15.974
1	ALL CLASSES	534.318	368.083	256.820	43.291	1202.512
2	BIG PASS	121.023	38.817	78.307	15.256	253.403
	ADULT	355.950	400.496	371.682	227.299	1355.427
	ELDERLY	0.000	108.650	82.042	0.000	190.692
	HANDICAPPED	18.986	22.714	0.000	0.000	41.700
	STUDENT	194.584	131.040	162.225	56.952	544.801
	CHILD	0.000	11.020	0.000	0.000	11.020
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	448.493	118.678	177.155	75.765	820.091
	UNKNOWN	0.000	61.928	19.889	0.000	81.817
2	ALL CLASSES	1139.036	893.343	891.300	375.272	3298.951
4	BIG PASS	305.040	43.976	59.520	29.264	437.800
	ADULT	497.004	239.774	508.600	279.247	1524.625
	ELDERLY	0.000	25.130	91.264	26.784	143.178
	HANDICAPPED	0.000	78.533	17.856	0.000	96.389
	STUDENT	732.096	424.069	616.980	145.825	1918.970
	CHILD	0.000	0.000	57.525	0.000	57.525
	FREE	98.208	0.000	0.000	34.720	132.928
	TRANSFER	395.339	122.512	337.302	32.232	887.385
	UNKNOWN	0.000	17.798	27.052	0.000	44.850
4	ALL CLASSES	2027.687	951.792	1716.099	548.072	5243.650
5	BIG PASS	76.912	25.640	61.180	0.000	163.732
	ADULT	159.558	192.290	231.609	23.310	606.767
	ELDERLY	21.632	108.968	21.412	0.000	152.012
	HANDICAPPED	21.632	0.000	0.000	0.000	21.632
	STUDENT	175.238	83.329	91.770	24.037	374.374
	CHILD	0.000	0.000	12.234	0.000	12.234
	FREE	0.000	0.000	0.000	4.370	4.370
	TRANSFER	123.686	130.754	92.635	33.680	380.755
	UNKNOWN	22.660	0.000	0.000	0.000	22.660
5	ALL CLASSES	601.318	540.981	510.840	85.397	1738.536

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1983 VIA BUS PASSENGER SURVEY

BOARDING PASSENGERS BY ROUTE, TIME PERIOD & FARE CLASS

ROUTE	FARE CLASS	AM PEAK 5:00A-8:59A	MIDDAY 9:00A-2:59P	PM PEAK 3:00P-5:59P	EVENING 6:00P-4:59A	ALL PERIODS
8	BIG PASS	25.758	11.556	50.773	0.000	88.087
	ADULT	109.123	243.400	168.428	65.799	586.750
	ELDERLY	0.000	21.186	6.192	0.000	27.378
	HANDICAPPED	0.000	0.000	6.192	11.556	17.748
	STUDENT	51.356	45.648	62.418	0.000	159.422
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	151.595	111.702	60.678	10.271	334.246
	UNKNOWN	0.000	0.000	0.000	0.000	0.000
8	ALL CLASSES	337.832	433.492	354.681	87.626	1213.631
9	BIG PASS	9.919	80.476	24.304	47.615	162.314
	ADULT	66.130	242.271	282.720	115.072	706.193
	ELDERLY	39.676	96.217	4.340	0.000	140.233
	HANDICAPPED	0.000	10.682	0.000	13.888	24.570
	STUDENT	0.000	129.570	82.464	27.776	239.810
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	154.750	120.527	54.064	45.632	374.973
	UNKNOWN	0.000	41.580	0.000	0.000	41.580
9	ALL CLASSES	270.475	721.323	447.892	249.983	1689.673
10	BIG PASS	3.068	0.000	6.484	0.000	9.552
	ADULT	6.136	22.496	45.388	16.476	90.496
	ELDERLY	0.000	2.812	0.000	0.000	2.812
	HANDICAPPED	0.000	2.812	0.000	0.000	2.812
	STUDENT	0.000	5.624	0.000	0.000	5.624
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	36.816	30.932	12.968	5.492	86.208
	UNKNOWN	0.000	2.812	0.000	0.000	2.812
10	ALL CLASSES	46.020	67.488	64.840	21.968	200.316
11	BIG PASS	47.041	29.169	90.287	5.093	171.590
	ADULT	212.891	166.680	266.684	43.522	689.777
	ELDERLY	18.335	41.667	28.475	0.000	88.477
	HANDICAPPED	0.000	13.890	14.585	0.000	28.475
	STUDENT	50.373	42.596	88.434	6.945	188.348
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	146.500	59.265	86.120	8.334	300.219
	UNKNOWN	11.205	0.000	0.000	0.000	11.205
11	ALL CLASSES	486.345	353.267	574.585	63.894	1478.091

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1983 VIA BUS PASSENGER SURVEY

BOARDING PASSENGERS BY ROUTE, TIME PERIOD & FARE CLASS

ROUTE	FARE CLASS	AM PEAK 5:00A-8:59A	MIDDAY 9:00A-2:59P	PM PEAK 3:00P-5:59P	EVENING 6:00P-4:59A	ALL PERIODS
12	BIG PASS	18.240	0.000	17.064	0.000	35.304
	ADULT	25.080	0.000	13.272	3.168	41.520
	ELDERLY	2.280	0.000	1.896	3.168	7.344
	HANDICAPPED	0.000	0.000	0.000	0.000	0.000
	STUDENT	4.560	0.000	0.000	0.000	4.560
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	2.280	0.000	0.000	0.000	2.280
	TRANSFER	9.120	0.000	3.792	0.000	12.912
	UNKNOWN	0.000	0.000	3.792	0.000	3.792
12	ALL CLASSES	61.560	0.000	39.816	6.336	107.712
14	BIG PASS	92.628	0.000	68.730	9.960	171.318
	ADULT	209.158	206.169	223.678	72.216	711.221
	ELDERLY	26.892	0.000	23.904	2.988	53.784
	HANDICAPPED	0.000	0.000	0.000	0.000	0.000
	STUDENT	35.861	31.374	58.266	0.000	125.501
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	0.000	2.490	0.000	2.490
	TRANSFER	215.644	26.892	64.750	26.883	334.169
	UNKNOWN	0.000	17.928	20.343	0.000	38.271
14	ALL CLASSES	580.183	282.363	462.161	112.047	1436.754
15	BIG PASS	120.606	199.460	23.344	14.324	357.734
	ADULT	306.124	380.256	261.709	0.000	948.089
	ELDERLY	55.172	29.706	24.613	0.000	109.491
	HANDICAPPED	0.000	9.902	0.000	0.000	9.902
	STUDENT	237.493	173.303	191.959	4.775	607.530
	CHILD	0.000	0.000	7.003	0.000	7.003
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	287.184	352.240	49.394	203.718	892.536
	UNKNOWN	0.000	29.592	135.127	71.618	236.337
15	ALL CLASSES	1006.579	1174.459	693.149	294.435	3168.622
17	BIG PASS	11.840	0.000	19.332	15.394	46.566
	ADULT	79.179	89.982	112.468	31.180	312.809
	ELDERLY	0.000	0.000	9.210	0.000	9.210
	HANDICAPPED	0.000	0.000	4.605	0.000	4.605
	STUDENT	17.760	30.784	19.335	0.000	67.879
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	7.104	0.000	0.000	7.104
	TRANSFER	65.525	46.176	74.102	9.998	195.801
	UNKNOWN	17.933	0.000	22.892	0.000	40.825
17	ALL CLASSES	192.237	174.046	261.944	56.572	684.799

1983 VIA BUS PASSENGER SURVEY

BOARDING PASSENGERS BY ROUTE, TIME PERIOD & FARE CLASS

ROUTE	FARE CLASS	AM PEAK 5:00A-8:59A	MIDDAY 9:00A-2:59P	PM PEAK 3:00P-5:59P	EVENING 6:00P-4:59A	ALL PERIODS
21	BIG PASS	5.788	0.000	0.000	0.000	5.788
	ADULT	23.152	6.102	4.124	27.605	60.983
	ELDERLY	2.894	0.000	0.000	0.000	2.894
	HANDICAPPED	1.447	0.000	0.000	0.000	1.447
	STUDENT	70.903	0.000	41.240	0.000	112.143
	CHILD	0.000	0.000	4.124	0.000	4.124
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	14.470	0.000	0.000	11.042	25.512
	UNKNOWN	0.000	0.000	0.000	0.000	0.000
21	ALL CLASSES	118.654	6.102	49.488	38.647	212.891
22	BIG PASS	38.196	14.146	53.925	0.000	106.267
	ADULT	127.320	221.020	224.304	25.464	598.108
	ELDERLY	0.000	0.000	10.609	0.000	10.609
	HANDICAPPED	6.366	0.000	0.000	0.000	6.366
	STUDENT	190.106	172.582	77.451	46.684	486.823
	CHILD	13.579	0.000	5.836	0.000	19.415
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	116.710	104.342	190.296	42.440	453.788
	UNKNOWN	0.000	0.000	0.000	0.000	0.000
22	ALL CLASSES	492.277	512.090	562.421	114.588	1681.376
24	BIG PASS	25.210	0.000	0.000	3.200	28.410
	ADULT	179.413	195.630	158.097	110.358	643.498
	ELDERLY	73.548	59.067	8.730	0.000	141.345
	HANDICAPPED	12.294	34.052	0.000	0.000	46.346
	STUDENT	288.847	99.962	88.384	43.215	520.408
	CHILD	42.893	0.000	33.611	0.000	76.504
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	142.002	162.690	130.308	89.692	524.692
	UNKNOWN	19.753	28.004	18.246	0.000	66.003
24	ALL CLASSES	783.960	579.405	437.376	246.465	2047.206
25	BIG PASS	22.740	95.160	60.493	0.000	178.393
	ADULT	306.778	357.216	321.120	28.877	1013.991
	ELDERLY	51.981	0.000	0.000	0.000	51.981
	HANDICAPPED	0.000	131.521	0.000	10.829	142.350
	STUDENT	259.931	304.182	163.478	59.573	787.164
	CHILD	0.000	0.000	27.850	0.000	27.850
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	191.691	247.698	183.548	120.574	743.511
	UNKNOWN	18.100	29.466	13.995	0.000	61.561
25	ALL CLASSES	851.221	1165.243	770.484	219.853	3006.801

1983 VIA BUS PASSENGER SURVEY

BOARDING PASSENGERS BY ROUTE, TIME PERIOD & FARE CLASS

ROUTE	FARE CLASS	AM PEAK 5:00A-8:59A	MIDDAY 9:00A-2:59P	PM PEAK 3:00P-5:59P	EVENING 6:00P-4:59A	ALL PERIODS
26	BIG PASS	52.342	45.486	162.992	0.000	260.820
	ADULT	278.586	441.848	301.074	0.000	1021.508
	ELDERLY	0.000	34.656	0.000	0.000	34.656
	HANDICAPPED	40.429	54.150	0.000	0.000	94.579
	STUDENT	620.315	344.374	307.042	43.320	1315.051
	CHILD	26.210	0.000	0.000	0.000	26.210
	FREE	0.000	0.000	5.957	0.000	5.957
	TRANSFER	242.614	178.696	178.696	116.964	716.970
	UNKNOWN	50.652	21.658	158.118	0.000	230.428
26	ALL CLASSES	1311.148	1120.868	1113.879	160.284	3706.179
28	BIG PASS	28.975	73.007	66.797	4.636	173.415
	ADULT	213.646	256.275	198.380	155.554	823.855
	ELDERLY	14.035	86.526	17.879	20.088	138.528
	HANDICAPPED	4.120	0.000	0.000	0.000	4.120
	STUDENT	54.477	51.376	114.146	32.448	252.447
	CHILD	0.000	0.000	6.374	0.000	6.374
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	35.544	131.594	218.799	98.129	484.066
	UNKNOWN	0.000	19.528	9.627	26.782	55.937
28	ALL CLASSES	350.797	618.306	632.002	337.637	1938.742
30	BIG PASS	52.440	5.826	24.472	0.000	82.738
	ADULT	233.088	181.052	64.240	100.509	578.889
	ELDERLY	0.000	20.391	33.650	0.000	54.041
	HANDICAPPED	0.000	0.000	18.354	0.000	18.354
	STUDENT	296.286	160.217	104.005	10.925	571.433
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	17.480	0.000	0.000	17.480
	TRANSFER	140.278	53.892	52.001	48.070	294.241
	UNKNOWN	29.136	22.856	0.000	0.000	51.992
30	ALL CLASSES	751.228	461.714	296.722	159.504	1669.168
32	BIG PASS	128.142	50.342	54.918	10.679	244.081
	ADULT	175.612	247.113	141.872	18.306	582.903
	ELDERLY	49.833	54.918	45.766	0.000	150.517
	HANDICAPPED	0.000	0.000	0.000	0.000	0.000
	STUDENT	355.980	158.656	141.889	39.156	695.681
	CHILD	0.000	19.832	0.000	0.000	19.832
	FREE	0.000	19.832	0.000	0.000	19.832
	TRANSFER	88.481	142.369	114.420	0.000	345.270
	UNKNOWN	87.806	0.000	0.000	96.107	183.913
32	ALL CLASSES	885.854	693.062	498.865	164.248	2242.029

WEST GRAY AVENUE

1983 VIA BUS PASSENGER SURVEY

BOARDING PASSENGERS BY ROUTE, TIME PERIOD & FARE CLASS

ROUTE	FARE CLASS	AM PEAK 5:00A-8:59A	MIDDAY 9:00A-2:59P	PM PEAK 3:00P-5:59P	EVENING 6:00P-4:59A	ALL PERIODS
34	BIG PASS	30.334	53.931	42.465	0.000	126.730
	ADULT	169.116	235.163	156.838	19.260	580.377
	ELDERLY	13.000	87.056	36.047	0.000	136.103
	HANDICAPPED	0.000	0.000	0.000	0.000	0.000
	STUDENT	93.966	173.341	111.082	13.479	391.868
	CHILD	0.000	0.000	5.135	0.000	5.135
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	169.315	171.795	73.752	34.668	449.530
	UNKNOWN	24.194	0.000	18.991	33.700	76.885
34	ALL CLASSES	499.925	721.286	444.310	101.107	1766.628
36	BIG PASS	33.627	70.993	37.703	15.288	157.611
	ADULT	165.573	287.723	285.066	111.357	849.719
	ELDERLY	0.000	28.025	28.532	0.000	56.557
	HANDICAPPED	33.118	65.392	0.000	0.000	98.510
	STUDENT	89.652	52.318	291.393	45.855	479.218
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	50.952	108.358	177.313	82.555	419.178
	UNKNOWN	23.436	0.000	33.882	10.917	68.235
36	ALL CLASSES	396.358	612.809	853.889	265.972	2129.028
38	BIG PASS	7.917	0.000	10.752	0.000	18.669
	ADULT	10.179	3.340	18.816	13.356	45.691
	ELDERLY	4.524	1.670	5.376	0.000	11.570
	HANDICAPPED	0.000	0.000	0.000	0.000	0.000
	STUDENT	2.262	1.670	5.376	0.000	9.308
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	0.000	2.688	0.000	2.688
	TRANSFER	20.358	5.010	16.128	0.000	41.496
	UNKNOWN	3.393	1.670	0.000	0.000	5.063
38	ALL CLASSES	48.633	13.360	59.136	13.356	134.485
42	BIG PASS	0.000	0.000	0.000	0.000	0.000
	ADULT	85.365	218.524	124.173	27.209	455.271
	ELDERLY	12.804	9.390	0.000	8.536	30.730
	HANDICAPPED	12.804	9.390	0.000	0.000	22.194
	STUDENT	71.489	148.211	67.222	0.000	286.922
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	46.948	49.080	63.488	13.870	173.386
	UNKNOWN	0.000	0.000	10.270	0.000	10.270
42	ALL CLASSES	229.410	434.595	265.153	49.615	978.773

BEST COPY AVAILABLE

1983 VIA BUS PASSENGER SURVEY

BOARDING PASSENGERS BY ROUTE, TIME PERIOD & FARE CLASS

ROUTE	FARE CLASS	AM PEAK 5:00A-8:59A	MIDDAY 9:00A-2:59P	PM PEAK 3:00P-5:59P	EVENING 6:00P-4:59A	ALL PERIODS
44	BIG PASS	89.124	102.917	136.235	6.013	334.289
	ADULT	707.731	389.495	570.205	96.543	1763.974
	ELDERLY	0.000	59.416	20.797	0.000	80.213
	HANDICAPPED	76.392	0.000	41.594	0.000	117.986
	STUDENT	268.964	298.141	153.585	0.000	720.690
	CHILD	0.000	0.000	23.172	0.000	23.172
	FREE	22.281	0.000	0.000	0.000	22.281
	TRANSFER	630.253	288.515	345.646	50.570	1314.984
	UNKNOWN	56.237	91.670	43.047	0.000	190.954
44	ALL CLASSES	1850.982	1230.154	1334.281	153.126	4568.543
46	BIG PASS	68.008	23.544	0.000	0.000	91.552
	ADULT	187.194	294.309	58.860	247.218	787.581
	ELDERLY	15.304	89.271	15.696	0.000	120.271
	HANDICAPPED	22.956	38.259	0.000	11.772	72.987
	STUDENT	105.937	35.316	58.860	11.772	211.885
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	41.527	86.332	97.312	36.494	261.665
	UNKNOWN	18.500	0.000	0.000	0.000	18.500
46	ALL CLASSES	459.426	567.031	230.728	307.256	1564.441
48	BIG PASS	21.764	5.804	23.210	0.000	50.778
	ADULT	24.672	52.238	37.935	0.000	114.845
	ELDERLY	0.000	0.000	0.000	0.000	0.000
	HANDICAPPED	0.000	0.000	7.256	0.000	7.256
	STUDENT	14.510	2.902	10.158	0.000	27.570
	CHILD	2.902	0.000	0.000	0.000	2.902
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	11.608	38.833	20.654	0.000	71.095
	UNKNOWN	0.000	0.000	4.146	0.000	4.146
48	ALL CLASSES	75.456	99.777	103.359	0.000	278.592
51	BIG PASS	46.911	20.620	75.779	15.465	158.775
	ADULT	413.947	217.541	194.845	239.702	1066.035
	ELDERLY	0.000	97.945	0.000	10.310	108.255
	HANDICAPPED	0.000	0.000	0.000	0.000	0.000
	STUDENT	288.682	61.860	0.000	67.016	417.558
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	137.124	77.325	92.784	201.046	508.279
	UNKNOWN	34.023	45.364	0.000	0.000	79.387
51	ALL CLASSES	920.687	520.655	363.408	533.539	2338.289

BEST COPY AVAILABLE

1983 VIA BUS PASSENGER SURVEY

BOARDING PASSENGERS BY ROUTE, TIME PERIOD & FARE CLASS

ROUTE	FARE CLASS	AM PEAK 5:00A-8:59A	MIDDAY 9:00A-2:59P	PM PEAK 3:00P-5:59P	EVENING 6:00P-4:59A	ALL PERIODS
52	BIG PASS	14.434	0.000	38.486	7.217	60.137
	ADULT	144.354	154.800	82.474	9.279	390.907
	ELDERLY	51.550	46.911	12.372	0.000	110.833
	HANDICAPPED	0.000	17.320	6.872	0.000	24.192
	STUDENT	96.915	44.384	12.368	0.000	153.667
	CHILD	0.000	2.887	0.000	0.000	2.887
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	20.621	96.348	75.601	19.590	212.160
	UNKNOWN	0.000	30.312	12.369	0.000	42.681
52	ALL CLASSES	327.874	392.962	240.542	36.086	997.464
54	BIG PASS	17.994	13.590	34.948	0.000	66.532
	ADULT	91.591	68.632	95.400	0.000	255.623
	ELDERLY	0.000	17.940	4.757	0.000	22.697
	HANDICAPPED	0.000	4.485	10.193	0.000	14.678
	STUDENT	43.259	35.742	36.693	0.000	115.694
	CHILD	0.000	4.349	0.000	0.000	4.349
	FREE	0.000	6.795	0.000	0.000	6.795
	TRANSFER	17.123	31.462	42.287	6.528	97.400
	UNKNOWN	9.665	6.116	3.805	0.000	19.586
54	ALL CLASSES	179.632	189.111	228.083	6.528	603.354
62	BIG PASS	82.854	0.000	101.440	65.936	250.230
	ADULT	316.592	182.580	462.354	137.960	1099.486
	ELDERLY	35.507	0.000	25.360	0.000	60.867
	HANDICAPPED	0.000	0.000	12.680	0.000	12.680
	STUDENT	82.872	44.380	166.730	40.576	334.558
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	310.672	186.396	78.202	62.558	637.828
	UNKNOWN	20.712	0.000	27.738	19.274	67.724
62	ALL CLASSES	849.209	413.356	874.501	326.304	2463.373
64	BIG PASS	91.464	1.658	71.040	0.000	164.162
	ADULT	136.824	79.326	42.624	17.760	276.534
	ELDERLY	4.736	0.000	0.000	0.000	4.736
	HANDICAPPED	0.000	3.592	0.000	0.000	3.592
	STUDENT	45.584	32.168	16.576	6.512	100.840
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	2.664	13.734	0.000	0.000	16.398
	TRANSFER	127.810	142.171	39.181	19.808	328.970
	UNKNOWN	18.284	0.000	14.208	5.920	38.412
64	ALL CLASSES	427.366	272.649	183.629	50.000	933.644

1983 VIA BUS PASSENGER SURVEY

BOARDING PASSENGERS BY ROUTE, TIME PERIOD & FARE CLASS

ROUTE	FARE CLASS	AM PEAK 5:00A-8:59A	MIDDAY 9:00A-2:59P	PM PEAK 3:00P-5:59P	EVENING 6:00P-4:59A	ALL PERIODS
68	BIG PASS	138.846	226.437	107.136	0.000	472.419
	ADULT	297.588	1111.005	969.184	190.464	2568.241
	ELDERLY	0.000	203.112	50.592	0.000	253.704
	HANDICAPPED	190.977	189.714	0.000	0.000	380.691
	STUDENT	989.560	677.472	559.488	113.088	2339.608
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	0.000	0.000	5.952	5.952
	TRANSFER	358.587	419.163	499.968	0.000	1277.718
	UNKNOWN	49.598	151.745	0.000	0.000	201.343
68	ALL CLASSES	2025.156	2978.648	2186.368	309.504	7499.676
74	BIG PASS	261.755	36.200	177.612	0.000	475.567
	ADULT	684.768	861.426	386.516	164.887	2097.597
	ELDERLY	0.000	244.948	60.648	0.000	305.596
	HANDICAPPED	117.614	0.000	0.000	0.000	117.614
	STUDENT	446.449	262.225	229.596	0.000	938.270
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	6.033	0.000	0.000	6.033
	TRANSFER	143.835	447.742	203.600	99.096	894.273
	UNKNOWN	48.110	95.328	59.686	78.247	281.371
74	ALL CLASSES	1702.531	1953.902	1117.658	342.230	5116.321
76	BIG PASS	42.420	31.510	14.544	12.726	101.200
	ADULT	169.253	271.325	249.842	136.944	827.364
	ELDERLY	33.534	147.045	10.908	0.000	191.487
	HANDICAPPED	11.313	0.000	32.724	0.000	44.037
	STUDENT	115.744	84.026	83.626	44.844	328.240
	CHILD	0.000	15.755	14.544	0.000	30.299
	FREE	0.000	0.000	0.000	5.454	5.454
	TRANSFER	230.269	320.364	187.244	76.658	814.535
	UNKNOWN	72.537	54.265	30.117	0.000	156.919
76	ALL CLASSES	675.070	924.290	623.549	276.626	2499.535
77	BIG PASS	63.750	44.620	62.686	24.340	195.396
	ADULT	123.768	270.900	136.266	53.894	584.828
	ELDERLY	0.000	41.858	22.516	0.000	64.374
	HANDICAPPED	0.000	20.929	30.378	0.000	51.307
	STUDENT	76.500	125.554	139.055	55.638	396.747
	CHILD	0.000	0.000	21.244	0.000	21.244
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	92.724	137.606	124.470	55.632	410.432
	UNKNOWN	9.155	33.734	7.946	12.170	63.005
77	ALL CLASSES	365.897	675.201	544.561	201.674	1787.333

BEST COPY AVAILABLE

1983 VIA BUS PASSENGER SURVEY

BOARDING PASSENGERS BY ROUTE, TIME PERIOD & FARE CLASS

ROUTE	FARE CLASS	AM PEAK 5:00A-8:59A	MIDDAY 9:00A-2:59P	PM PEAK 3:00P-5:59P	EVENING 6:00P-4:59A	ALL PERIODS
79	BIG PASS	23.364	0.000	93.989	0.000	117.353
	ADULT	280.027	417.827	236.911	52.238	987.003
	ELDERLY	20.449	0.000	0.000	0.000	20.449
	HANDICAPPED	20.449	0.000	0.000	0.000	20.449
	STUDENT	253.644	519.033	279.215	53.614	1105.506
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	54.991	165.305	117.196	24.738	362.230
	UNKNOWN	22.395	0.000	32.164	13.747	68.306
79	ALL CLASSES	675.319	1102.165	759.475	144.337	2681.296
82	BIG PASS	12.222	0.000	69.142	15.714	97.078
	ADULT	217.097	261.021	159.759	24.879	662.756
	ELDERLY	44.817	64.599	8.380	0.000	117.796
	HANDICAPPED	0.000	0.000	4.190	0.000	4.190
	STUDENT	49.472	102.141	141.938	43.214	336.765
	CHILD	0.000	0.000	2.619	0.000	2.619
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	8.148	136.626	144.042	36.665	325.481
	UNKNOWN	0.000	0.000	6.809	49.758	56.567
82	ALL CLASSES	331.756	564.387	536.879	170.230	1603.252
84	BIG PASS	59.437	17.214	29.898	46.206	152.755
	ADULT	190.254	86.976	168.955	111.893	558.078
	ELDERLY	8.154	29.218	22.045	0.000	59.417
	HANDICAPPED	8.154	0.000	0.000	16.761	24.915
	STUDENT	52.998	32.616	61.004	38.053	184.671
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	5.436	0.000	6.342	11.778
	TRANSFER	29.898	66.595	67.986	31.191	195.670
	UNKNOWN	0.000	0.000	38.532	0.000	38.532
84	ALL CLASSES	348.895	238.055	388.420	250.446	1225.816
86	BIG PASS	82.170	46.314	66.230	3.984	198.698
	ADULT	165.835	147.709	187.911	67.728	569.183
	ELDERLY	5.976	0.000	27.884	7.683	41.543
	HANDICAPPED	0.000	0.000	3.486	0.000	3.486
	STUDENT	147.908	152.870	161.648	57.303	519.729
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	6.723	10.458	0.000	5.976	23.157
	TRANSFER	106.070	127.968	118.528	23.904	376.470
	UNKNOWN	0.000	11.155	11.953	0.000	23.108
86	ALL CLASSES	514.682	496.474	577.640	166.578	1755.374

1983 VIA BUS PASSENGER SURVEY

BOARDING PASSENGERS BY ROUTE, TIME PERIOD & FARE CLASS

ROUTE	FARE CLASS	AM PEAK 5:00A-8:59A	MIDDAY 9:00A-2:59P	PM PEAK 3:00P-5:59P	EVENING 6:00P-4:59A	ALL PERIODS
87	BIG PASS	0.000	0.000	2.397	0.000	2.397
	ADULT	13.695	0.000	4.794	0.000	18.489
	ELDERLY	0.000	0.000	0.000	0.000	0.000
	HANDICAPPED	0.000	0.000	0.000	0.000	0.000
	STUDENT	2.739	0.000	0.000	0.000	2.739
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	0.000	0.000	14.382	0.000	14.382
	UNKNOWN	0.000	0.000	0.000	0.000	0.000
87	ALL CLASSES	16.434	0.000	21.573	0.000	38.007
88	BIG PASS	0.000	72.594	30.902	23.544	127 040
	ADULT	163.829	203.711	484.125	80.193	931.858
	ELDERLY	48.069	149.112	26.487	0.000	223.668
	HANDICAPPED	0.000	0.000	0.000	0.000	0.000
	STUDENT	85.347	93.195	79.461	41.202	299.205
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	154.544	235.440	148.132	41.196	579.312
	UNKNOWN	0.000	29.755	24.035	8.093	61.883
88	ALL CLASSES	451.789	783.807	793.142	194.228	2222.966
90	BIG PASS	138.640	28.530	184.494	10.144	361.808
	ADULT	174.235	80.835	223.138	165.677	643.885
	ELDERLY	19.020	0.000	0.000	0.000	19.020
	HANDICAPPED	0.000	0.000	0.000	0.000	0.000
	STUDENT	405.774	285.300	195.908	16.904	903.886
	CHILD	0.000	0.000	8.876	0.000	8.876
	FREE	0.000	0.000	13.948	0.000	13.948
	TRANSFER	272.245	285.300	133.876	57.975	749.396
	UNKNOWN	36.673	80.835	29.161	0.000	146.669
90	ALL CLASSES	1046.587	760.800	789.401	250.700	2847.488
92	BIG PASS	226.884	74.360	111.009	81.322	493.575
	ADULT	349.728	601.770	380.124	395.285	1726.907
	ELDERLY	31.192	208.876	98.152	15.596	353.816
	HANDICAPPED	31.192	154.290	12.874	0.000	198.356
	STUDENT	109.184	313.873	115.829	89.295	628.181
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	0.000	0.000	0 000	0.000
	TRANSFER	448.686	352.598	168.940	122 538	1092.762
	UNKNOWN	33.470	30.412	44.650	0.000	108.532
92	ALL CLASSES	1230.336	1736.179	931.578	704.036	4602.129

1983 VIA BUS PASSENGER SURVEY

BOARDING PASSENGERS BY ROUTE, TIME PERIOD & FARE CLASS

ROUTE	FARE CLASS	AM PEAK 5:00A-8:59A	MIDDAY 9:00A-2:59P	PM PEAK 3:00P-5:59P	EVENING 6:00P-4:59A	ALL PERIODS
93	BIG PASS	15.780	10.520	27.354	0.000	53.654
	ADULT	57.852	173.580	156.017	3.156	390.605
	ELDERLY	0.000	0.000	0.000	0.000	0.000
	HANDICAPPED	0.000	0.000	10.257	0.000	10.257
	STUDENT	213.516	170.950	121.489	67.334	573.289
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	84.160	19.988	17.095	1.052	122.295
	UNKNOWN	4.208	0.000	10.434	0.000	14.642
93	ALL CLASSES	375.516	375.038	342.646	71.542	1164.742
96	BIG PASS	47.550	32.606	111.421	14.266	205.843
	ADULT	186.802	172.772	159.278	20.380	539.232
	ELDERLY	16.982	59.778	0.000	0.000	76.760
	HANDICAPPED	0.000	29.889	43.483	0.000	73.372
	STUDENT	44.160	59.786	46.365	0.000	150.311
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	85.263	117.687	152.531	11.209	366.690
	UNKNOWN	0.000	34.730	29.451	0.000	64.181
96	ALL CLASSES	380.757	507.248	542.529	45.855	1476.389
97	BIG PASS	19.915	17.074	77.172	0.000	114.161
	ADULT	178.406	148.671	110.777	30.411	468.265
	ELDERLY	6.636	82.520	8.536	0.000	97.692
	HANDICAPPED	3.318	0.000	4.268	0.000	7.586
	STUDENT	22.404	9.603	77.883	12.271	122.161
	CHILD	4.979	0.000	0.000	4.268	9.247
	FREE	4.979	0.000	0.000	0.000	4.979
	TRANSFER	65.972	54.778	66.857	36.278	223.885
	UNKNOWN	13.275	9.603	11.203	6.402	40.483
97	ALL CLASSES	319.884	322.249	356.696	89.630	1088.459
503	BIG PASS	0.000	0.000	0.000	0.000	0.000
	ADULT	3.598	14.204	9.592	0.000	27.394
	ELDERLY	0.000	0.000	0.000	0.000	0.000
	HANDICAPPED	0.000	0.000	0.000	0.000	0.000
	STUDENT	0.000	0.000	9.592	0.000	9.592
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	7.196	0.000	0.000	0.000	7.196
	UNKNOWN	0.000	0.000	0.000	0.000	0.000
503	ALL CLASSES	10.794	14.204	19.184	0.000	44.182

1983 VIA BUS PASSENGER SURVEY

BOARDING PASSENGERS BY ROUTE, TIME PERIOD & FARE CLASS

ROUTE	FARE CLASS	AM PEAK 5:00A-8:59A	MIDDAY 9:00A-2:59P	PM PEAK 3:00P-5:59P	EVENING 6:00P-4:59A	ALL PERIODS
504	BIG PASS	12.267	0.000	0.000	0.000	12.267
	ADULT	20.445	14.028	36.420	0.000	70.893
	ELDERLY	0.000	0.000	0.000	0.000	0.000
	HANDICAPPED	4.089	0.000	0.000	0.000	4.089
	STUDENT	20.445	3.507	0.000	0.000	23.952
	CHILD	4.089	0.000	0.000	0.000	4.089
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	16.356	14.028	36.420	0.000	66.804
	UNKNOWN	0.000	0.000	0.000	0.000	0.000
504	ALL CLASSES	77.691	31.563	72.840	0.000	182.094
505	BIG PASS	14.976	6.552	0.000	0.000	21.528
	ADULT	93.593	40.000	41.316	8.424	183.333
	ELDERLY	1.404	2.059	0.936	0.000	4.399
	HANDICAPPED	1.404	0.000	0.000	0.000	1.404
	STUDENT	53.350	11.044	24.336	0.000	88.730
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	26.204	38.376	30.888	8.424	103.892
	UNKNOWN	0.000	1.192	1.738	0.000	2.930
505	ALL CLASSES	190.931	99.223	99.214	16.848	406.216
508	BIG PASS	8.638	0.000	13.574	1.234	23.446
	ADULT	44.422	57.999	20.732	0.000	123.153
	ELDERLY	0.000	10.489	0.000	0.000	10.489
	HANDICAPPED	0.000	5.553	0.000	0.000	5.553
	STUDENT	18.512	30.852	35.016	10.644	95.024
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	23.150	18.797	24.680	0.000	66.627
	UNKNOWN	0.000	0.000	5.183	0.000	5.183
508	ALL CLASSES	94.722	123.690	99.185	11.878	329.475
509	BIG PASS	23.200	0.000	9.776	0.000	32.976
	ADULT	18.560	0.000	14.664	3.211	36.435
	ELDERLY	9.280	0.000	0.000	0.000	9.280
	HANDICAPPED	0.000	0.000	0.000	0.000	0.000
	STUDENT	4.640	0.000	24.440	0.000	29.080
	CHILD	4.640	0.000	0.000	0.000	4.640
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	41.760	0.000	14.664	6.422	62.846
	UNKNOWN	0.000	0.000	0.000	0.000	0.000
509	ALL CLASSES	102.080	0.000	63.544	9.633	175.257

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1983 VIA BUS PASSENGER SURVEY

BOARDING PASSENGERS BY ROUTE, TIME PERIOD & FARE CLASS

ROUTE	FARE CLASS	AM PEAK 5:00A-8:59A	MIDDAY 9:00A-2:59P	PM PEAK 3:00P-5:59P	EVENING 6:00P-4:59A	ALL PERIODS
512	BIG PASS	0.000	14.868	0.000	0.000	14.868
	ADULT	13.380	172.168	55.530	0.000	241.078
	ELDERLY	0.000	28.548	0.000	0.000	28.548
	HANDICAPPED	0.000	0.000	0.000	0.000	0.000
	STUDENT	341.895	83.565	74.925	0.000	500.385
	CHILD	14.865	0.000	0.000	0.000	14.865
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	57.980	31.518	29.436	8.028	126.962
	UNKNOWN	0.000	14.274	3.345	0.000	17.619
512	ALL CLASSES	428.120	344.941	163.236	8.028	944.325
515	BIG PASS	13.115	1.640	27.642	0.000	42.397
	ADULT	97.134	84.619	106.198	0.000	287.951
	ELDERLY	0.000	13.118	0.000	0.000	13.118
	HANDICAPPED	0.000	0.000	24.362	0.000	24.362
	STUDENT	78.388	4.919	78.245	0.000	161.552
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	1.874	0.000	0.000	0.000	1.874
	TRANSFER	49.037	53.882	66.990	0.000	169.909
	UNKNOWN	0.000	10.496	9.995	0.000	20.491
515	ALL CLASSES	239.548	168.674	313.432	0.000	721.654
516	BIG PASS	3.825	11.424	2.448	0.000	17.697
	ADULT	41.988	0.000	35.292	0.000	77.280
	ELDERLY	0.000	11.424	7.752	0.000	19.176
	HANDICAPPED	0.000	0.000	0.000	0.000	0.000
	STUDENT	35.346	0.000	60.996	0.000	96.342
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	0.000	38.556	19.584	0.000	58.140
	UNKNOWN	0.000	29.988	0.000	0.000	29.988
516	ALL CLASSES	81.159	91.392	126.072	0.000	298.623
520	BIG PASS	70.566	47.835	50.832	9.568	178.801
	ADULT	197.340	276.745	140.633	34.685	649.403
	ELDERLY	0.000	48.438	0.000	0.000	48.438
	HANDICAPPED	0.000	0.000	8.372	5.382	13.754
	STUDENT	113.022	200.928	148.304	5.382	467.636
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	99.864	195.545	239.799	16.742	551.950
	UNKNOWN	14.950	46.778	21.429	0.000	83.157
520	ALL CLASSES	495.742	816.269	609.369	71.759	1993.139

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1983 VIA BUS PASSENGER SURVEY

BOARDING PASSENGERS BY ROUTE, TIME PERIOD & FARE CLASS

ROUTE	FARE CLASS	AM PEAK 5:00A-8:59A	MIDDAY 9:00A-2:59P	PM PEAK 3:00P-5:59P	EVENING 6:00P-4:59A	ALL PERIODS
524	BIG PASS	18.042	2.911	13.095	0.000	34.048
	ADULT	98.867	62.088	63.708	0.000	224.663
	ELDERLY	8.730	7.762	0.000	0.000	16.492
	HANDICAPPED	0.000	0.000	0.000	0.000	0.000
	STUDENT	65.184	64.029	122.220	0.000	251.433
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	41.614	33.955	43.650	0.000	119.219
	UNKNOWN	6.466	0.000	9.056	0.000	15.522
524	ALL CLASSES	238.903	170.745	251.729	0.000	661.377
530	BIG PASS	0.000	0.000	0.000	0.000	0.000
	ADULT	103.278	28.827	97.295	7.206	236.606
	ELDERLY	0.000	20.018	0.000	0.000	20.018
	HANDICAPPED	0.000	0.000	0.000	0.000	0.000
	STUDENT	93.080	32.427	111.694	0.000	237.201
	CHILD	9.008	0.000	0.000	0.000	9.008
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	73.260	40.836	133.315	12.012	259.423
	UNKNOWN	8.406	0.000	0.000	0.000	8.406
530	ALL CLASSES	287.032	122.108	342.304	19.218	770.662
550	BIG PASS	8.555	0.000	3.849	7.698	20.102
	ADULT	107.479	103.625	55.170	30.792	297.066
	ELDERLY	6.416	23.094	0.000	0.000	29.510
	HANDICAPPED	0.000	0.000	0.000	0.000	0.000
	STUDENT	72.720	127.016	6.415	0.000	206.151
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	57.744	134.720	15.994	11.628	220.086
	UNKNOWN	18.692	4.145	0.000	0.000	22.837
550	ALL CLASSES	271.606	392.600	81.428	50.118	795.752
551	BIG PASS	0.000	0.000	19.569	0.000	19.569
	ADULT	53.742	170.800	87.990	0.000	312.532
	ELDERLY	0.000	10.674	0.000	0.000	10.674
	HANDICAPPED	7.905	21.348	0.000	0.000	29.253
	STUDENT	18.970	81.834	31.132	31.132	163.068
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	25.298	78.276	23.127	3.558	130.259
	UNKNOWN	0.000	0.000	6.285	0.000	6.285
551	ALL CLASSES	105.915	362.932	168.103	34.690	671.640

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1983 VIA BUS PASSENGER SURVEY

BOARDING PASSENGERS BY ROUTE, TIME PERIOD & FARE CLASS

ROUTE	FARE CLASS	AM PEAK 5:00A-8:59A	MIDDAY 9:00A-2:59P	PM PEAK 3:00P-5:59P	EVENING 6:00P-4:59A	ALL PERIODS
600	BIG PASS	0.000	6.980	10.470	0.000	17.450
	ADULT	0.000	189.378	91.089	0.000	280.467
	ELDERLY	0.000	29.316	3.490	0.000	32.806
	HANDICAPPED	0.000	0.000	0.000	0.000	0.000
	STUDENT	0.000	16.984	10.121	0.000	27.105
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	2.094	0.000	0.000	2.094
	TRANSFER	21.638	12.564	15.007	0.000	49.209
	UNKNOWN	0.000	0.000	0.000	0.000	0.000
600	ALL CLASSES	21.638	257.316	130.177	0.000	409.131
601	BIG PASS	8.152	80.136	0.000	38.584	126.882
	ADULT	12.244	1061.209	448.910	0.000	1522.363
	ELDERLY	0.000	201.972	0.000	0.000	201.972
	HANDICAPPED	0.000	0.000	0.000	0.000	0.000
	STUDENT	0.000	0.000	0.000	9.646	9.646
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	0.000	19.292	0.000	19.292
	TRANSFER	28.567	128.218	35.616	38.584	230.985
	UNKNOWN	0.000	144.245	0.000	0.000	144.245
601	ALL CLASSES	48.973	1615.780	503.818	86.814	2255.385
602	BIG PASS	0.000	0.000	5.786	0.000	5.786
	ADULT	11.572	44.181	2.893	0.000	58.646
	ELDERLY	0.000	0.000	0.000	0.000	0.000
	HANDICAPPED	0.000	0.000	0.000	0.000	0.000
	STUDENT	0.000	0.000	0.000	0.000	0.000
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	0.000	0.000	2.893	0.000	2.893
	UNKNOWN	0.000	4.909	0.000	0.000	4.909
602	ALL CLASSES	11.572	49.090	11.572	0.000	72.234
604	BIG PASS	5.641	19.740	35.533	0.000	60.914
	ADULT	9.928	34.544	20.727	0.987	66.186
	ELDERLY	0.000	0.000	0.000	0.000	0.000
	HANDICAPPED	1.128	0.000	0.000	0.000	1.128
	STUDENT	11.563	2.796	13.980	0.000	28.339
	CHILD	1.974	0.000	0.000	0.000	1.974
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	51.898	24.683	14.804	0.000	91.385
	UNKNOWN	2.482	0.000	0.000	0.000	2.482
604	ALL CLASSES	84.614	81.763	85.044	0.987	252.408

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1983 VIA BUS PASSENGER SURVEY

BOARDING PASSENGERS BY ROUTE, TIME PERIOD & FARE CLASS

ROUTE	FARE CLASS	AM PEAK 5:00A-8:59A	MIDDAY 9:00A-2:59P	PM PEAK 3:00P-5:59P	EVENING 6:00P-4:59A	ALL PERIODS
608	BIG PASS	2.186	0.000	0.000	0.000	2.186
	ADULT	15.302	4.153	12.706	6.996	39.157
	ELDERLY	0.000	8.306	0.000	0.000	8.306
	HANDICAPPED	0.000	0.000	0.000	0.000	0.000
	STUDENT	4.372	0.000	12.706	0.000	17.078
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	28.418	4.153	12.706	10.494	55.771
	UNKNOWN	4.372	4.153	12.706	0.000	21.231
608	ALL CLASSES	54.650	20.765	50.824	17.490	143.729
609	BIG PASS	2.183	2.062	0.000	0.000	4.245
	ADULT	17.464	4.124	4.680	0.000	26.268
	ELDERLY	0.000	0.000	0.000	0.000	0.000
	HANDICAPPED	0.000	0.000	0.000	0.000	0.000
	STUDENT	4.366	10.310	7.020	0.000	21.696
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	8.732	4.124	4.680	2.426	19.962
	UNKNOWN	0.000	0.000	0.000	0.000	0.000
609	ALL CLASSES	32.745	20.620	16.380	2.426	7[illegible].171
610	BIG PASS	3.640	0.000	0.000	0.000	3.640
	ADULT	14.560	4.247	5.295	0.000	24.102
	ELDERLY	0.000	0.000	0.000	0.000	0.000
	HANDICAPPED	0.000	0.000	0.000	0.000	0.000
	STUDENT	5.460	12.741	1.765	0.000	19.966
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	1.820	4.247	12.355	2.426	20.848
	UNKNOWN	0.000	0.000	0.000	0.000	0.000
610	ALL CLASSES	25.480	21.235	19.415	2.426	68.556
611	BIG PASS	11.464	9.534	0.000	0.000	20.998
	ADULT	37.258	9.531	0.000	0.000	46.792
	ELDERLY	0.000	0.000	0.000	0.000	0.000
	HANDICAPPED	0.000	0.000	0.000	0.000	0.000
	STUDENT	42.990	14.301	0.000	0.000	57.291
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	17.196	33.369	29.088	10.266	89.919
	UNKNOWN	5.732	0.000	0.000	0.000	5.732
611	ALL CLASSES	114.640	66.738	29.088	10.266	220.732

1983 VIA BUS PASSENGER SURVEY

BOARDING PASSENGERS BY ROUTE, TIME PERIOD & FARE CLASS

ROUTE	FARE CLASS	AM PEAK 5:00A-8:59A	MIDDAY 9:00A-2:59P	PM PEAK 3:00P-5:59P	EVENING 6:00P-4:59A	ALL PERIODS
612	BIG PASS	1.218	0.000	8.683	0.000	9.901
	ADULT	19.801	17.180	12.565	1.675	51.221
	ELDERLY	0.000	0.000	0.000	0.000	0.000
	HANDICAPPED	1.828	0.000	0.000	0.000	1.828
	STUDENT	62.449	4.570	7.312	0.000	74.331
	CHILD	3.046	0.000	0.000	0.000	3.046
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	7.004	4.570	19.197	10.050	40.821
	UNKNOWN	2.437	3.838	0.000	0.000	6.275
612	ALL CLASSES	97.783	30.158	47.757	11.725	187.423
613	BIG PASS	5.838	0.000	6.038	0.000	11.876
	ADULT	23.352	14.312	0.000	0.000	37.664
	ELDERLY	0.000	0.000	0.000	0.000	0.000
	HANDICAPPED	2.919	0.000	0.000	0.000	2.919
	STUDENT	49.623	7.156	24.152	0.000	80.931
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	17.514	17.890	72.456	0.000	107.860
	UNKNOWN	0.000	0.000	0.000	0.000	0.000
613	ALL CLASSES	99.246	39.358	102.646	0.000	241.250
614	BIG PASS	0.000	0.000	17.823	0.000	17.823
	ADULT	71.017	40.580	34.964	0.000	146.561
	ELDERLY	0.000	0.000	0.000	0.000	0.000
	HANDICAPPED	5.484	0.000	0.000	0.000	5.484
	STUDENT	65.490	0.000	17.823	2.742	86.055
	CHILD	0.000	0.000	2.742	0.000	2.742
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	9.139	11.880	63.078	0.000	84.097
	UNKNOWN	2.399	4.204	3.428	0.000	10.031
614	ALL CLASSES	153.529	56.664	139.858	2.742	352.793
615	BIG PASS	2.877	0.000	0.000	0.000	2.877
	ADULT	11.508	0.000	20.712	0.000	32.220
	ELDERLY	0.000	0.000	0.000	0.000	0.000
	HANDICAPPED	0.000	0.000	0.000	0.000	0.000
	STUDENT	0.000	0.000	0.000	0.000	0.000
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	28.770	0.000	0.000	0.000	28.770
	UNKNOWN	0.000	0.000	0.000	0.000	0.000
615	ALL CLASSES	43.155	0.000	20.712	0.000	63.867

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1983 VIA BUS PASSENGER SURVEY

BOARDING PASSENGERS BY ROUTE, TIME PERIOD & FARE CLASS

ROUTE	FARE CLASS	AM PEAK 5:00A-8:59A	MIDDAY 9:00A-2:59P	PM PEAK 3:00P-5:59P	EVENING 6:00P-4:59A	ALL PERIODS
616	BIG PASS	37.557	0.000	0.000	0.000	37.557
	ADULT	87.633	35.110	5.180	6.714	134.637
	ELDERLY	4.173	0.000	0.000	0.000	4.173
	HANDICAPPED	4.173	7.022	0.000	0.000	11.195
	STUDENT	25.038	10.533	0.000	6.714	42.285
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	8.346	35.110	20.720	26.856	91.032
	UNKNOWN	0.000	0.000	0.000	0.000	0.000
616	ALL CLASSES	166.920	87.775	25.900	40.284	320.879
617	BIG PASS	0.000	4.840	3.357	0.000	8.197
	ADULT	36.703	21.780	13.428	0.000	71.911
	ELDERLY	0.000	0.000	0.000	0.000	0.000
	HANDICAPPED	0.000	0.000	0.000	0.000	0.000
	STUDENT	12.954	14.520	0.000	0.000	27.474
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	4.318	12.100	23.499	0.000	39.917
	UNKNOWN	2.159	0.000	0.000	0.000	2.159
617	ALL CLASSES	56.134	53.240	40.284	0.000	149.658
630	BIG PASS	2.482	0.000	0.000	0.000	2.482
	ADULT	7.446	0.000	0.000	0.000	7.446
	ELDERLY	0.000	0.000	0.000	0.000	0.000
	HANDICAPPED	0.000	0.000	0.000	0.000	0.000
	STUDENT	7.446	0.000	0.000	0.000	7.446
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	1.241	0.000	18.992	0.000	20.233
	UNKNOWN	2.482	0.000	0.000	0.000	2.482
630	ALL CLASSES	21.097	0.000	18.992	0.000	40.089
632	BIG PASS	4.628	0.000	5.553	0.000	10.181
	ADULT	6.942	0.000	5.553	0.000	12.495
	ELDERLY	2.314	0.000	1.851	0.000	4.165
	HANDICAPPED	0.000	0.000	0.000	0.000	0.000
	STUDENT	0.000	0.000	0.000	0.000	0.000
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	9.256	0.000	5.553	0.000	14.809
	UNKNOWN	0.000	0.000	0.000	0.000	0.000
632	ALL CLASSES	23.140	0.000	18.510	0.000	41.650

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1983 VIA BUS PASSENGER SURVEY

BOARDING PASSENGERS BY ROUTE, TIME PERIOD & FARE CLASS

ROUTE	FARE CLASS	AM PEAK 5:00A-8:59A	MIDDAY 9:00A-2:59P	PM PEAK 3:00P-5:59P	EVENING 6:00P-4:59A	ALL PERIODS
640	BIG PASS	11.134	0.000	0.000	0.000	11.134
	ADULT	22.268	0.000	10.316	0.000	32.584
	ELDERLY	5.567	0.000	0.000	0.000	5.567
	HANDICAPPED	5.567	0.000	0.000	0.000	5.567
	STUDENT	33.402	0.000	2.579	0.000	35.981
	CHILD	0.000	0.000	0.000	0.000	0.000
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	16.701	0.000	15.474	7.564	39.739
	UNKNOWN	5.567	0.000	0.000	0.000	5.567
640	ALL CLASSES	100.206	0.000	28.369	7.564	136.139
648	BIG PASS	37.622	5.364	0.000	7.242	50.228
	ADULT	55.909	52.299	84.480	15.691	208.379
	ELDERLY	0.000	0.000	7.242	0.000	7.242
	HANDICAPPED	2.012	0.000	0.000	0.000	2.012
	STUDENT	15.590	6.034	13.277	6.639	41.540
	CHILD	0.000	0.000	0.000	1.811	1.811
	FREE	0.000	0.000	0.000	0.000	0.000
	TRANSFER	149.491	25.356	38.628	17.005	230.480
	UNKNOWN	12.299	0.000	0.000	0.000	12.299
648	ALL CLASSES	272.923	89.053	143.627	48.388	553.991
ALL	BIG PASS	3178.264	1866.317	2924.163	573.024	8541.768
	ADULT	10822.873	13792.405	11701.980	3887.276	40204.534
	ELDERLY	795.676	2865.475	920.505	95.153	4676.809
	HANDICAPPED	675.996	925.439	314.581	70.188	1986.204
	STUDENT	9236.043	6988.108	6531.509	1446.390	24202.050
	CHILD	136.519	53.843	232.889	6.079	429.330
	FREE	150.121	88.966	54.254	62.814	356.155
	TRANSFER	7751.965	7382.892	6484.390	2326.249	23945.496
	UNKNOWN	859.527	1268.066	1006.843	432.735	3567.171
ALL	ALL CLASSES	33606.984	35231.511	30171.114	8899.908	107909.517

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APPENDIX B

MACHINE READABLE FILE FORMATS

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MASTER SAMPLE FILE

COLUMNS	FIELD NAME
1-3	CLUSTER NAME
4-6	ROUTE
7-8	BLOCK
9	DIRECTION
10-34	START LOCATION
35	START TIME PERIOD
36-39	START TIME
40	END TIME PERIOD
41-44	END TIME
45-46	TRIP SEQUENCE NUMBER
47	TRIP TIME PERIOD CODE

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SURVEY RESPONSE FILE

COLUMNS	FIELD NAME
1-5	SERIAL NUMBER
6	ORIGIN TRANSFER
7-9	FROM ROUTE
10	FARE CLASS
11	PURPOSE AT ORIGIN
12	DISTANCE TO ORIGIN STOP
13	PURPOSE AT DESTINATION
14	DESTINATION TRANSFER
15-17	TO ROUTE
18	MODE AT DESTINATION
19	AUTOS AVAILABLE
20	TOTAL AUTOS AT HOME
21	TOTAL PERSONS IN HOUSEHOLD
22	PASSENGER'S AGE
23	PASSENGER'S SEX
24	EDUCATION
25	RACE
26-31	ORIGIN TRACT
32-34	ORIGIN BLOCK
35-40	DESTINATION TRACT
41-43	DESTINATION BLOCK
44-47	"STOP ON" CODE
48-51	"STOP OFF" CODE
52-54	FARE (IN CENTS)
55-57	ROUTE OF ISSUE
58-62	TRIP START TIME

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TRIP LOG FILE

COLUMNS	FIELD NAME
1-2	BLOCK
3-5	ROUTE
6-10	SCHEDULED START TIME
11-14	SURVEY DATE
15	SURVEY DAY
16-21	MAIN BEGIN SERIAL NUMBER
22-27	MAIN ENDING SERIAL NUMBER
28-33	RESUPPLY BEGIN SERIAL
34-39	RESUPPLY ENDING SERIAL
40-43	BUS NUMBER
44-71	FIRST ZONE RECORD
44-45	FARE ZONE
46-51	ZONE BEGIN SERIAL NUMBER
52-56	ZONE BEGIN TIME
57-59	BOARDING COUNT - ADULT
60-61	BOARDING COUNT - CHILD
62-63	BOARDING COUNT - TRANSFER
64-65	BOARDING COUNT - BIG PASS
66-67	BOARDING COUNT - E&H
68-69	BOARDING COUNT - STUDENT
70-71	BOARDING COUNT - FREE
72-99	SECOND ZONE RECORD
100-127	THIRD ZONE RECORD
128-133	DECK NEXT SERIAL AT END
134-138	TRIP ENDING TIME

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FINAL COMBINED & FACTORED FILE

COLUMNS	FIELD NAME
1-2	STRATA KEYS (USED FOR FACTORING)
3-4	BLOCK
5-7	ROUTE
8-12	START TIME
13	SEGMENT TIME PERIOD CODE
14-16	SURVEY DATE
17	SURVEY DAY
18-21	BUS NUMBER
22-23	ROUTE SEGMENT NUMBER
24-29	BEGIN SERIAL NUMBER 1
30-35	END SERIAL NUMBER 1
36-41	BEGIN SERIAL NUMBER 2
42-47	END SERIAL NUMBER 2
48-50	ADULT BOARDINGS
51-52	CHILD BOARDINGS
53-54	TRANSFER BOARDINGS
55-56	BIG PASS BOARDINGS
57-58	ELDERLY - HANDICAP BOARDINGS
59-60	STUDENT BOARDINGS
61-62	FREE BOARDINGS
63-65	TOTAL QUESTIONNAIRES PASSED OUT
66-68	TOTAL BOARDING PASSENGERS
69	DIRECTION
70	TRIP TIME PERIOD CODE
71-75	RESPONSE SERIAL NUMBER
76	FROM TRANSFER STATUS
77-79	TRANSFER FROM ROUTE
80	FARE CLASS
81	ORIGIN PURPOSE
82	DISTANCE TO STOP
83	DESTINATION PURPOSE
84	EXIT TRANSFER STATUS
85-87	TRANSFER TO ROUTE
88	MODE EGRESS
89	AUTO AVAILABILITY
90	VEHICLES OWNED
91	PERSONS IN HOUSEHOLD
92	AGE
93	SEX
94	LEVEL OF EDUCATION
95	RACE
96-101	ORIGIN CENSUS TRACT
102-104	ORIGIN CENSUS BLOCK
105-110	DESTINATION CENSUS TRACT
111-113	DESTINATION CENSUS BLOCK
114-117	STOP ON
118-121	STOP OFF
122-124	FARE PAID
125-132	BATCH CONTROL DATA (DATA ENTRY)
133-140	BUS TRIP FACTOR
141-148	RESPONSE FACTOR
149-156	REVENUE ADJUSTMENT FACTOR
157-164	AGGREGATE FACTOR

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